Safety Maintenance

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LOSS STOPPERS

The free bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

PLANT HYGIENE

Radiation Monitoring Systems ... 219
Nuclear Measurements Corp. New advances in radiation detection are presented concisely in this bulletin which describes an integrated monitoring system with central control panel, a gamma alarm system requiring no central power supply, new air monitor, and a new gas and liquid monitor.

Flexible Air Ducts 220
Flexible Tubing Corp. New brochure describes the uses of flexible tubing for ventilation, fume removal and materials handling systems. Includes descriptions of each of seven types of tubing, their characteristics, construction and standard sizes.

MACHINE SAFETY

Dual Valve Assembly 221
Micro Switch. This data sheet features a dual-valve assembly for use with single-stroke clutch actuator circuits to prevent operation of the machine if the de-energized valve remains open. Includes mounting dimensions and electrical ratings of the electrically interlocked two-valve assembly.

Protective Telescoping Covers .. 222
Central Safety Equipment Co. New guide presents new uses and applications for helically-wound steel ribbon covers that protect operators from moving shafts, rams, threads, pin and bushing, etc. Bulletin shows additional value of covers in protecting machinery from chips, dust, grime, etc. Shows applications in die sets, rolling mills, scarfing and billet turning, lathes and automatics, hydraulic and air rams, food and drug machinery.

Automatic Roll Feeds 223
Durant Tool Co. A catalog of automatic roll feeds for presses offers a complete range of sizes and capacities and emphasizes the features of each type. Included are single roll and double roll feeds.

MATERIALS HANDLING

Hand Truck Catalog 224
The Fairbanks Co. This 40-page catalog describes, pictures and gives full specifications for 2-wheel and platform trucks, ranging from general-purpose models to specialized appliance trucks, and units for handling barrels, bags, gas cylinders, drums, open barrels, kegs, cases, bales, sheet metal, paper rolls, crates, etc.

Web Belt Slings 225
Jones & Laughlin Steel Corp., Wire Rope Div. New brochure contains useful data on slings made of nylon or Dacron, including resistance to common agents; dimensions and capacities in vertical, choker and basket applications; available aluminum or steel fittings.

Adjustable Dockboards 226
The Kelley Co. This 8-page booklet outlines how to design loading docks and yards for better shipping and receiving. Unusually informative, it shows how to prevent yard traffic jams and gives space requirements, standards for the loading platform, and the advantages of adjustable loading ramps.

Warning Ring for Sling Chains .. 227
Campbell Chain Co. Illustrated brochure describes the new "warning" ring for lifting chains—a link that is as strong as the chain itself but visibly elongates if the sling is overloaded. Includes specifications and tells how personnel can check the amount of elongation.

PERSONAL PROTECTION

New Line of Safety Glasses 228
American Optical Co. Attractive full-color brochure describes and illustrates a new line of safety glasses, enumerating several safety advances: stronger temple hinge, tighter screw, wider end pieces, new lens lock, non-reflecting side shields, wider temples, sturdier frame.

Condensed Work Glove Catalog . 229
David's Gloves, Inc. New price list gives concise data on a full line of industrial gloves, including numerous illustrations. Covers types made of cloth, terry, vinyl-impregnated, leather, neoprene, asbestos, etc.

Welding Helmet & Hard Cap Combinations 230
Flood Safety Products. Well illustrated 4-page catalog sheet describes a full line of impact and fire resistant safety helmets combined with hard caps to protect welders from falling objects and knock-against hazards as well as from welding hazards. Includes caps of fiber glass, aluminum, or plastic; and welding helmets of fiber glass and vulcanized fiber.

New Fashioned Safety Glasses .. 231
Pulmosan Safety Equipment Co. This bulletin presents details on newly styled safety spectacles. Bulletin features data on the new

(Continued on the next page)

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Free Bulletins (Cont'd)

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FIRE PROTECTION

Watchmen's Control Systems 232
Detex Watchclock Corp. Bulletin gives basic information on portable watchclocks of the tape-recording type and several models of watchmen's "station" installations, including new flush-mounted types.

Back-Pack Fire Extinguishers 233
D. B. Smith & Co. This 4-page bulletin describes and illustrates several models of U.L.-listed back-pack water extinguishers made of steel, brass or fiber glass suitable for industrial, construction, and outdoor fire crews.

Fire-Retardant Ceilings 234
Armstrong Cork Co. Attractive brochure describes a U.L.-approved fire-retardant acoustical ceiling now adapted to grid-suspension types of installations. Literature shows how the material provides fire protection but permits accessibility to utility equipment in the plenum chamber.

PLANT MAINTENANCE

Immediate-Use Floor Patcher 235
Monroe Co. An improved floor repair and resurfacing material that makes dense, tough floor patches that are ready for use immediately after installation is described in this 4-page bulletin, which gives step-by-step pictures of how to use the material.

Anti-Slip Grating Products 236
Bustin Steel Products, Inc. New 32-page handbook and design manual of industrial safety gratings and assemblies features numerous safety uses such as outdoor conveyor ramps, stair treads, lead tables, platform decks, grilles, cross-overs, portable stair-stands, floors, etc.

Safety Sight Glass 237
PresSure Products Co. Bulletin outlines details of a new type of sight glass for chemical processing, utilizing safety lenses and special mounting design for high-pressure and high-temperature service.

What's Your Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

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	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
111	Electrical Gloves Tester
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
115	Fire Fighting Suits
117	Safety Shoes
118	Safety Boots
119	Non-Slip Boots
	FIRST AID AND HYGIENE
120	Protective Skin Creams
122	Sanitary Drinking Facilities
124	Salt Tablets
125	Resuscitators
126	Antiseptic Medication
127	Burn Medication
127A	Poison Ivy Immunizer
128	First Aid Kits & Supplies
129	Stretchers & Litters
129A	Stretcher Cases
130	Throat Medication
131	Eye Wash Fountains
131A	Emergency Showers
132	Portable Ventilators
133	Dust Collectors
135	Hearing Protectors
137	Noise Mufflers
	FIRE PROTECTION
141	Safety Cans
142	Fire Alarms
148	Watchmen's Control Systems
149	Fire Blankets
	LIGHTING AND WARNING DEVICES
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
155	Truck Back-Up Alarms
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Compounds
168	Ultrasonic Flaw-Detector
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
174	Emergency Ladder Rungs
175	Safety Hooks
176	Folding Truck Steps
177	Carboy Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
185	Lock-Out Air Valves
	EDUCATIONAL AIDS
191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
195	Changeable Letter Signs
197	Safety Training Films

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 121, Number 4 **April, 1961**

EDITORIAL

Fasten Your Seat Belts 4
Seven Deadly Sins 4
Lift That Rug 4

ACCIDENT PREVENTION

Who Will Be Your Injury Repeaters? by THOMAS W. JENKINS, Ph.D. 9
Safety Equipment: Production Stimulator #1 12
The Other Safety Features of Safety Eyewear (eye protection series) 14
It's a Safety Fact: There's No Time to Duck! 19
Industrial X-Ray Requires Safety Housing 21
Safety Suited for Outer Space 25
Keeping Up With Recent Respiratory Protection Developments (respiratory protection series) 54
New Accident Prevention Bulletins 1
New Accident Prevention Products 61

MAINTENANCE

Industrial X-Ray Requires Safety Housing 21
End Concrete Scaling 23
New Maintenance Bulletins 1
New Maintenance Products 61

INDUSTRIAL HYGIENE

Industrial Hygiene News 33
A Critical Look at Washrooms (skin protection series) 34
Health Is in the Air 36
New Industrial Hygiene Bulletins 1
New Industrial Hygiene Products 61

FIRE PROTECTION

The Fire Front 47
On the Fire Horizon 48
Fire Communication Counts 51
New Fire Protection Bulletins 1
New Fire Protection Products 61

SPECIAL DEPARTMENTS

Loss Stoppers 1
Reader's Free Inquiry Card 1
What's Your Problem? 2
The Future Shows 6
Production Aids Check List 7
"Safety Maintenance" Salutes 18
Another Injury Checked 22
What's the Law? 27
The Safety Shelf 29
Achievements & Awards 42
Inside the Trade 59
What's New 61
Index to Advertisers 66

Cover picture by courtesy of Leeds & Northrop Co.: Safety clothed employee of Kennecott Copper Corp.'s Baltimore refinery holds an expendable-tip immersion thermocouple for measuring casting temperatures.

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it's SAFE to say

● FASTEN YOUR SEAT BELTS

Seat safety belts for motor vehicles now have come of age. According to the findings of safety authorities, casualty insurance companies and testing "laboratories," motor vehicle fatalities and injuries can be reduced substantially by the use of safety belts, but there is a general area of doubt about the *percentage* of that reduction.

It would seem that too much emphasis can be placed on statistics, with which the man in the street almost never associates himself. If seat belts belong in motor vehicles, as we think they do, they should be installed *and used* even if they reduce the number of fatal and serious injuries by as little as 10 percent. Why wait until we can prove that their use will protect the lives of 30, 40 or 50 percent of accident victims?

There is movement toward legislation requiring the installation of seat belts in private cars and trucks. Obviously, this is a step in the right direction preliminary to an educational campaign for the use of the belts whether the vehicle is to travel three blocks or three hundred miles. This will not be easy but, by the same token, we never stop trying to educate industrial workers to *use* the safety goggles provided for them.

In the meantime, one of the car manufacturers announces a plan to equip next year's models with the floor clamps to which belts can be attached. But why stop there? Why not make safety belts standard equipment, at least in the front? It would seem that if the cars and trucks were equipped with safety belts, the educational problem would be less difficult. We do not buy a car or truck with the wiring for signaling all set up and then force the owner to go out and buy his own horn.

No one suggests that the installation and use of safety belts will prevent all motor vehicle injuries, but long-range tests show that they certainly will keep an occupant from being thrown out of the car or truck. Never mind the *x* percentage factor. Let's start saving lives by installing AND USING those seat belts.

● SEVEN DEADLY SINS

Safety directors everywhere long have felt that accident repeaters or the accident-prone reveal certain personality traits which set them slightly apart. Now comes a study, detailed elsewhere in this issue of SAFETY MAINTENANCE, showing that there are seven deadly sins of accident proneness.

The accident or, more accurately, the injury-repeater tends to be more easily distracted from his immediate job; his judgment is faulty in that he reveals a lack of discernment of the need for acting prudently; he is more likely to be a non-conformist and thus is less inclined to complying with rules, standards and commonly accepted behavior patterns unless carefully watched; he "couldn't care less" and therefore is less easily influenced by the feelings or actions of others; he has an unorthodox attitude toward personal pain or the *memory* of pain and pain-inducing behavior; he has an exaggerated sense of self-assurance with a form of self-confidence that stifles, temporarily at least, forethought and preventive care. Finally, regardless of his outward appearance, the accident-repeater can be overly aggressive and displays an attitude not motivated by social or team-work objectives. He needs to be protected against these seven deadly sins and placed where he cannot harm himself or others.

● LIFT THAT RUG

An entirely new set of rules for reporting accidents to employees of the nation's railroads will confront that industry, according to drastically changed regulations of the Interstate Commerce Commission. Henceforth all accidents to all railroad employees must be reported to comply with Congressional legislation enacted last year. Previously, the Commission required reporting of accidents to only a portion of railroad employees. Hereafter, reports must be filed covering any accident serious enough to incapacitate an employee for 24 hours or more. Moreover, beginning next year, a separate report must be submitted for each reportable personal injury.

While this new ruling may show a great increase in accidents and injuries, it would seem to us that the only way we can combat this problem properly is to stop sweeping a great part of that problem under a convenient rug.

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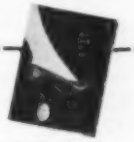

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Boston, Mass. *April 3–4*

Fortieth Annual Massachusetts Safety Conference and Exhibit (Hotel Statler Hilton). Bert Harmon, Manager, Massachusetts Safety Council, 54 Devonshire St., Boston 9, Mass.

Detroit, Mich. *April 9–13*

1961 American Industrial Hygiene Conference (Sheraton-Cadillac Hotel). George Clayton, AIHA Executive Secretary, 14125 Prevost St., Detroit 27, Mich.

Toronto, Ont. *April 10–11*

44th Annual Meeting & Safety Show of the Industrial Accident Prevention Associations (Royal York Hotel). R. G. D. Anderson, General Manager, Industrial Accident Prevention Associations, 90 Harbour St., Toronto 1, Ont.

New York, N. Y. *April 10–14*

Thirty-First Annual Greater New York Safety Convention and Exposition (Statler Hilton Hotel). William J. Farley, Convention Director, Greater New York Safety Council, 60 E. 42nd St., New York 17, N. Y.

Lansing, Mich. *April 11–13*

Thirty-first Annual Michigan Safety Conference. Kenneth S. Hedges, Safety Director, General Motors Corp., Detroit, Mich.

Indianapolis, Ind. *April 26–27*

Fourteenth Central Indiana Safety Conference & Exhibit (Claypool Hotel). Jack E. Gunnell, Director, Indianapolis Safety Council, 320 N. Meridian St., Indianapolis, Ind.

Syracuse, N. Y. *May 1–3*

Central New York Safety Conference & Exhibit (Hotel Syracuse). Greater Syracuse Safety Council of the Syracuse Chamber of Commerce, Syracuse, N. Y.

Columbus, Ohio *May 2–4*

Thirty-First Annual All-Ohio Safety Congress & Exhibit (Deshler Hilton Hotel and Neil House). Arthur W. Moon, Congress Chairman, Ohio Division of Safety & Hygiene, 400 S. Front St., Columbus 15, Ohio.

Bethlehem, Pa. *May 8–10*

Thirty-Fourth Annual Eastern Pennsylvania Safety Conference (Hotel Bethlehem). Harold A. Seward, Secretary-Treas., Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 9–11*

Twenty-First Western New York Safety Conference (Hotel Niagara). Clifford H. Seymour, Conference Executive Secretary, Western New York Safety Conference, P. O. Box 315, Niagara Falls, N. Y.

Durham, N. C. *May 10–12*

Thirty-First Annual North Carolina Statewide Industrial Safety Conference (Jack Tar Durham Hotel). H. S. Baucom, Director of Safety, North Carolina Industrial Commission, Raleigh, N. C.

Duluth, Minn. *May 25–26*

Thirty-Seventh Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). Allen D. Look, Secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

Hartford, Conn. *June 13–14*

Sixteenth Annual Safety Conference and Exhibit of The Connecticut Safety Society (Statler Hilton Hotel). Charles A. Wooding, Conference Chairman, c/o Wallingford Steel Co., Wallingford, Conn.

Los Angeles, Calif. *July 18–20*

Second Western Plant Maintenance and Engineering Show and Conference (Pan-Pacific Auditorium). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Check List of Aids to Production:

Through Accident Prevention—

Safety Tests 9
Safety Equipment 12
Safety Eyewear 14
Hard Hats 19
Safety Goggles 22
Safety Clothing 25
Smoke Mask for Firemen 54
Emergency Escape Mask 54
Light-Duty Respirator 54
Rocket Fuel Gas Mask 55
Approved Paint Respirator 55
Speaker Unit for Masks 56
Compact Breathing Apparatus 56
Air-Tight Headgear 56
Nuisance Dust Mask 56
½-Hour Breathing Apparatus 56
Paint Respirator 57
Rubber Glove Tester 61
Air-Conditioned Boot 61
Fluorescent Letter Signs 61
Warning Ring Sling Chain 62
Industrial Warning Horn 62
Photoelectric Guards 62
Compact "Walkie-Talkie" 62
Lens Care Station 63
Women's Safety Glasses 63
Impact Resistant Flasher 64
New Automatic Light 64
Life Line Shock Absorber 64
Reversible Plastic Gloves 65

Through Maintenance—

Fumeless Sweeper 18
Flaw Detector 21
Concrete Maintenance 23
Compact Ultrasonic Cleaner 61
Masonry Leak Sealer 61
Rubberized Caulking Seal 63
Toilet Deodorizer 63
Chuck-Hole Filler 64
Improved Bowl Cleaner 64
Safety Floor Coating 65
Floor Machine with Silencer 65

Through Industrial Hygiene—

Fumeless Sweeper 18
Washroom Facilities 34
Ventilation Equipment 36
Breathing Apparatus Gauge 55
Less Toxic Solvent 62
New Film-Badge Reporting 62
Infra-Red Heater 64
Green Membrane Filter 64
Improved Safety Solvent 65
Sterilizing Mat 65
Hand Cleaner Dispenser 65
Topical Spray Anesthetic 65

Through Fire Protection—

New Extinguishing Agents 48
Firemen's Mask-Phones 51
Smoke Mask for Firemen 54
Firemen's Breathing Apparatus 56
½-Hour Breathing Apparatus 56
New Fire Detector 62
Explosion-Proof Outlet 63
CO_2 Extinguishers 63

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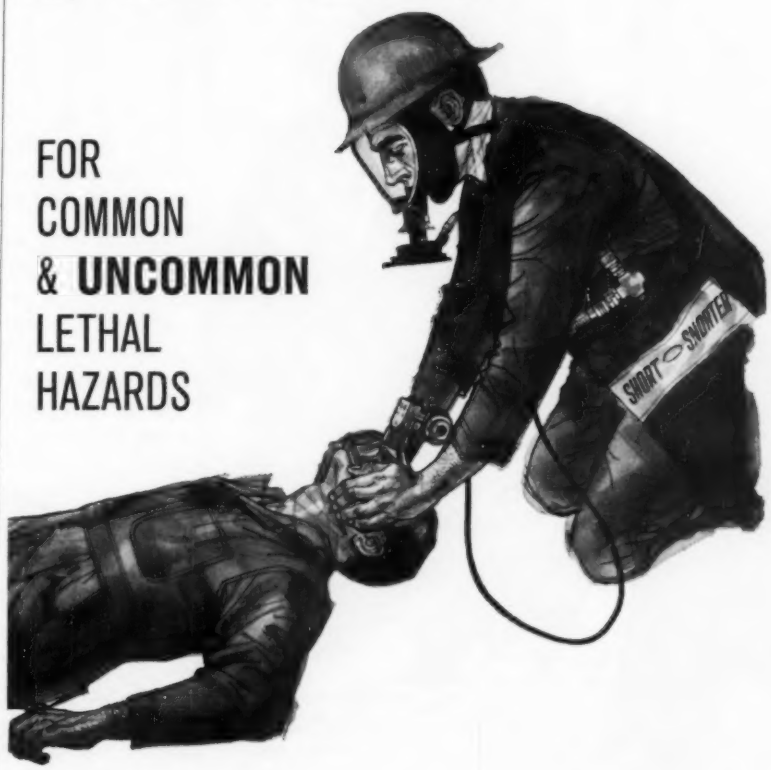

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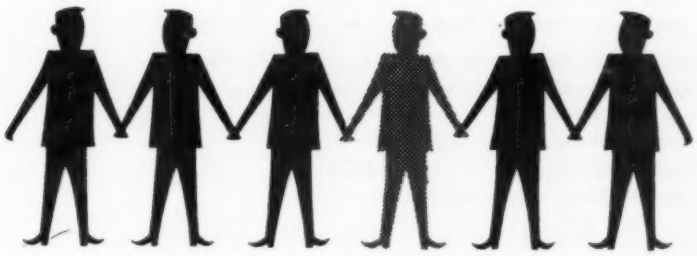
WHO WILL BE YOUR INJURY-REPEATERS?



by **THOMAS W. JENKINS, Ph.D.**

Is there a valid yardstick for measuring the behavior tendencies of injury repeaters? If so, safety engineers, training directors, and other personnel executives could use it to control more effectively the incidence of on-the-job accidents. To do this, however, a test is needed which will furnish a safety index for each individual hired.

Physical Factors

For the past five years, Executive Analysis Corporation has been attempting to determine the nature of those measurable components of the human personality that are related to accidents. Previously, investigators had been fairly successful in determining and measuring sensory, motor and mental abilities as related to accidents. For instance, visual defects as factors in injury repetition could be ascertained by testing the eyes. These measures of sensory, motor and mental abilities, while making a significant contribution, have, however, left something to be desired in coping with industrial accidents.

Safety engineers and personnel men have long felt that accident liability is *also* related to personality, that is, to attitudes and behavior tendencies, conscious or not. But previous attempts to identify and measure the personal qualities closely associated with industrial accidents had been relatively unsuccessful. Some people have felt that the relationship is too complex for measurement.

The relationship *is* complex, as the new studies show; but it is measurable if the personality tests are extremely comprehensive. The psychological tests used in our preliminary studies comprised 131 measures of primary personality qualities and 52 of occupational interest. This made it possible to investigate what relationship, if any, existed between many personality factors and the range of occurrence of injuries or accidents.

The initial study was undertaken in cooperation with 23 participating companies. In this study, pairs of employees on the same job were utilized. One member of the pair was considered by management to be without question an injury-repeater. The other was selected as an unqualifiedly safe worker on the same job.

Relationship Established

Studies of these matched pairs revealed 27 statistically significant relationships between behavior tendencies and injury repetition. Later, similar studies made for 27 other organizations gave substantially the same results. These results show that the relationship *is* complex. Equally important, they also indicate that the tendency to have accidents is measurable and predictable.

Personality Traits of the Injury-Repeaters

The difference in feelings and attitudes between the safe and the unsafe worker as shown by these investigations can be organized into seven general categories:

1. Attentiveness—The injury-repeater's attention tends to be more easily distracted from the task he is involved in.

2. Judiciousness—The injury-repeater reveals a relative unawareness or lack of discernment of the need for acting prudently.

3. Group-Dissociative Independence—The injury-repeater tends to feel less inclined toward accepting or complying with rules, standards and social customs.

4. Personal-Social Sensitivity—The injury-repeater's feelings and attitudes are less easily influenced or affected either by the feelings or actions of other people.

5. Attitude Toward Personal Pain—The injury-repeater tends to think and feel differently in regard to the idea of personal pain, and/or the memory of pain he has experienced.

6. Presumptuous Self-Assurance—The injury-repeater exhibits a kind of self-confidence that tends to stifle feelings that forethought or preventive care may be advisable; instead he tends to feel that compli-

CASE HISTORY 1:
Drivers for Trucking Firm

An East Coast trucking firm, employing over 900 over-the-road drivers, furnished comprehensive accident data on 60 drivers who had been employed by the firm for from three to 12 years. Moreover, the company classified these accidents on the basis of *level of negligence*. The group of drivers of course included some who had had no accidents during their entire terms of employment. The accidents were classified as:

Class A—No negligence attributed to the driver.

Class B—Doubtful that negligence could be attributed to the driver.

Class C—Minor driver negligence.

Class D—Obvious driver negligence.

Class E—Gross driver negligence.

Carefully detailed data of this kind is indispensable for getting more effective control over industrial accidents.

After the tests for the Job Attitudes Survey were given, the median score for all 60 drivers was taken as the Median Safety Index. It might be of interest to note that this median, or average, score coincided with that obtained in the preliminary researches for setting up the Survey tests.

A comparison was then made of two groups of drivers, divided according to their actual accident experience. The "No Negligence" group was composed of those who had either had no accidents at all or were involved only in no-negligence accidents. The "Negligence" group consisted of drivers who had been involved in one or more negligence-accidents.

The accompanying Diagram A shows how the two groups scored in the Job Attitudes tests. For example, 81% of the no-negligence group made scores above the average; while 69% of the negligence group scored below average.

What do these figures mean in terms of accident prevention? If the attitude tests had been given to this company's drivers at the time of employment, and only those with above-average scores had been hired, 69% of the negligence accidents would have been eliminated. Put another way, the percentage of this company's negligent over-the-road drivers would have been reduced from 48% to 25%. Not all of the negligence-drivers would have been eliminated (31% scored above average); and some of the no-negligence drivers would have been eliminated (19% scored below the average). Naturally, it is desirable that the hiring decision should be based on all relevant data obtainable, such as visual defects, job history, etc. Nevertheless, the evidence shows that the Safety Index by itself will furnish the employment manager with important and reliable information useful for reducing the incidence and costs of industrial accidents.

Because the trucking company was able to provide detailed information on the amount of negligence involved in its drivers' accidents, this particular study offered some answers to other important questions. For example, there is a statistically significant relationship between the Safety Index scores and no-negligence accidents. How should positive results like this be interpreted? Suppose the driver is not considered responsible for an accident because another driver ran into his truck. Analysis of his Job Attitude test furnishes a plausible answer. The so-called non-negligent driver may be a sober, alert, wide-awake individual who obeys all traffic rules and regulations. Yet he may fail to anticipate such possibilities as poor driving on the part of others.

Another interesting fact brought out by comparisons of the scores with the drivers' actual accident records is that 69% of the

cations are unlikely and that he can handle them spontaneously as they do arise.

7. Social Orientation—The injury-repeater tends to have aggressive, self-assertive attitudes toward others—attitudes which are not primarily motivated by social or team-work consideration of goals.

One purpose of these preliminary studies was to determine whether the behavior traits related to accidents were basically the same for people on all types of jobs. The job samples therefore varied greatly in the amount and kind of skill required. The samples involved such industrial activities as paper making, textiles, chemicals, meat processing, public utilities, foundries, aircraft manufacturing, dairy products, light and heavy machinery industries, federal post-offices, civilian mechanical maintenance at an air force base, and nuclear operations. The jobs included janitors, public utility linemen, bus and truck drivers, garage mechanics, welders, packing machine operators, tool makers, messengers, laboratory technicians, subway railroad clerks and trackmen, sheet metal workers, unskilled laborers, inspectors, supervisors, carpenters, and workers at various kinds of general production and assembling operations.

The preliminary investigations and recent studies strongly suggest that the seven classes of personality traits are related to accident tendencies in all types of industrial and transportation work.

Attitudes Test

On the basis of this research information, an experimental test to determine injury-repeaters was devised. The test was tried out on 295 matched pairs of employees in 39 organizations located in 20 states, Washington, D. C., and Canada. From the results of this experimental test, a Job Attitudes Survey has been devised. It provides a reliable type of new information relative to the human factors involved in having repeated injuries. The written test consists of 150 questions and the employee is asked to check off one of six responses to each question. Most of the questions in the test have no

apparent connection with accidents or safety.

The Job Attitudes Survey, backed up with the information gained from the preliminary studies, is designed to reveal where the individual stands in the seven general categories of behavior tendencies which distinguished the relatively safe worker from the injury-repeater. Safety directors and other executives, however, will wish to learn how the test and resulting Safety Index works in an individual company. The two accompanying case histories show what the Safety Index reveals as applied in transportation and manufacturing industries.

One very good procedure for determining what a psychological instrument of this kind can do is to utilize it for a group where each employee is performing *the same job* under the same set of company regulations and conditions. Case History 1, covering the drivers of an East Coast trucking firm, is an example of an application of the Job Attitudes Survey and Safety Index to a situation where all employees have the same job under the same controls.

Case History 2, shows how the Safety Index functions when employees work under the same roof at a variety of jobs. Here, matched pairs of "safe" and "unsafe" workers for the same kinds of jobs were used, but the extension of the Safety Index to the wide variety of job duties encountered in this metals industry plant provides significant evidence of the validity of the relation between personality traits and injury-repetition.

Significance of Attitude Survey

These two case histories have much practical import for safety and personnel specialists, as well as management. The Job Attitude Survey made possible a substantial and reliable prediction as to who were safe workers and who were not when it was used to compare employees on the same type of job. The relationship of the Safety Index scores to the actual injury experience stands up for a variety of jobs even though the accident data on the employees in the metals

(Continued on page 52)

negligence drivers who made Safety Index scores below the average accounted for 73.5% of the total of 109 negligence accidents. Had they been eliminated from over-the-road driving, the company would have had only one quarter of the negligence accidents it experienced. Obviously, then, the trucking concern would have to nearly double its recruiting efforts to obtain a full complement of over-the-road drivers.

DIAGRAM A

	Non-Negligent	Negligent
	81%	31%
Median Safety Index		
	19%	69%

CASE HISTORY 2:
Metals Industry Employees

The personnel and safety departments of a Mid-West manufacturing plant in the metals industry investigated to what degree the Job Attitudes Survey would differentiate the safe workers from the injury-repeaters in their plant. They selected matched pairs of employees from the same jobs, one member of the pair having had no serious injuries in the four years from 1956 through 1959, and the other having had three or more serious injuries. The injuries were classified into those requiring a physician's attention after which the employee returned to work, and those involving "lost time."

The Job Attitudes test scores for the whole group ranged from 21 to 53 with a median between 37 and 38. Two types of comparisons can be made according to the type of injury involved.

Diagram B shows how the "No Accident" group scored in comparison with the "Many Accidents" group (4 or more accidents in the four-year period).

DIAGRAM B

	No Accidents	Many Accidents
	70%	25%
Median Safety Index		
	30%	75%

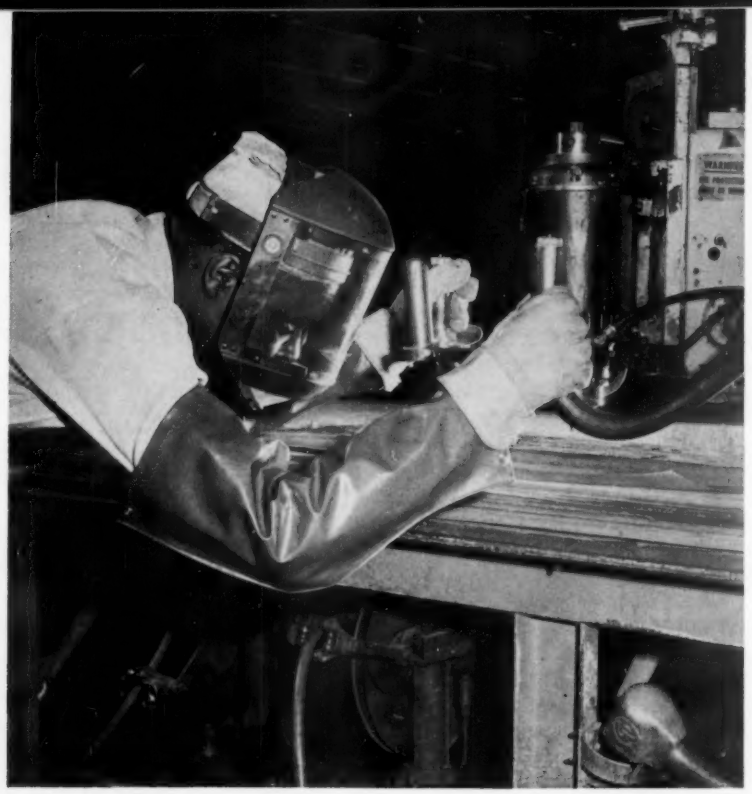
It will be noted that 70% of the "No-Accident" group scored above average on the tests, while 75% of the "Many Accidents" group scored below the average. In other words the Job Attitudes test significantly indicated the employees who are likely to be injury-repeaters in actual experience.

What about accident severity? An individual may have only a few accidents but they may result in total permanent, partial permanent, or temporary total disability. Such accidents can be very costly. That the Job Attitudes test has potentials for detecting the "severe accident" repeater is indicated in the second comparison, as illustrated in Diagram C.

DIAGRAM C

	No Accidents	1 to 3 "Lost Time" Accidents
	70%	19%
Median Safety Index		
	30%	81%

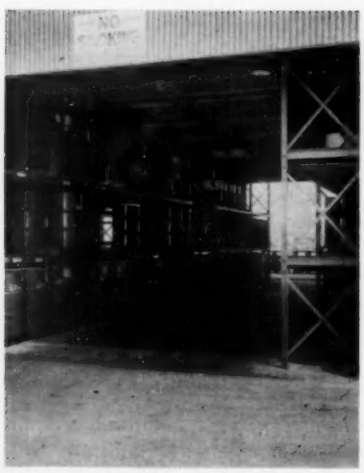
Here, 81% of the group who had experienced from 1 to 3 lost time accidents scored below the average in the tests, while 70% of the no-accident group maintained above-average scores.



Flying metal chips can cause eye injury and, because they are hot, burn the face. The face shield allows operator full vision for his work. Arm guards and leather gloves prevent hot chips from burning skin during this routing job.

SAFETY PRODUCTION

Respirator and safety goggles protect grinder operator from dust of fiberglass patterns.



Open type of storage building for paints and chemicals prevents toxic fumes and flammable fumes from collecting. Air movement through open building stops explosions and toxic poisoning of personnel.

Close-down lid on abrasive cut-off unit housing prevents injury to operator from wheel shattering. Unit has external controls and shatter-proof window. Operator's eye protectors double the safety.

The complexity of machinery, techniques and materials used in modern industrial plants demands that strict safety procedures be established, that safety rules be diligently adhered to, and that protective devices be made available and be used. In such modern facilities as North American Aviation's in Los Angeles extra precautions are taken. This means that careful study must be made of all shops and work areas, including maintenance. Many safety devices are constantly being devised by the employees themselves at all levels of activity. More complex devices, such as shelters near fuel testing areas, are carefully planned by engineers and technicians. The accompanying photographs show how protective devices have been adapted to Missile Age requirements and how new safety problems are being met at North American Aviation.

Pictures by Authenticated News.

"Live Test" units emit ear-piercing sounds during operation in test calls. Ear muffs protect technicians' and mechanics' hearing when working in this area. The supersonic speed of the air creates the harmful high level noise pitch.

EQUIPMENT: STIMULATOR #1

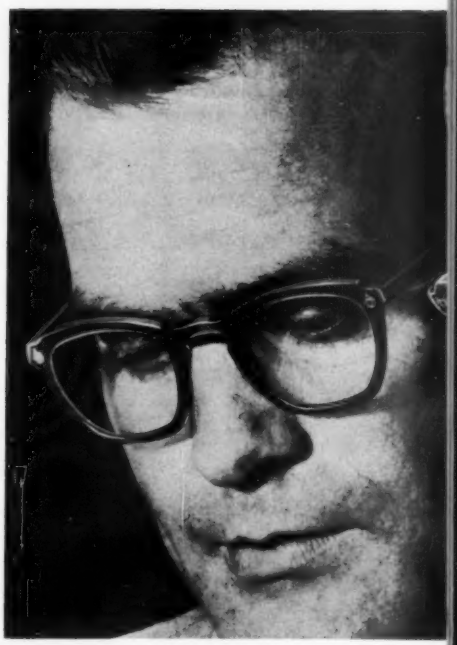
Safety switch is set in metal door jamb. Door must be closed to fire explosive charge while testing pylons of aircraft. Open door inactivates the firing mechanism.

During high heat (2000 F) treating operations, employee is protected by face shield, asbestos gloves, coat and apron, safety toed shoes.

Beryllium, a toxic material, is safely handled in an isolator cabinet. The filter elements to the right collect the dust particles that are evacuated from isolator cabinet. Note employee's personal respirator.

The Other Safety Features of Safety Eyewear

PLASTIC-FRAME SPECTACLES WITH SAFETY LENSES

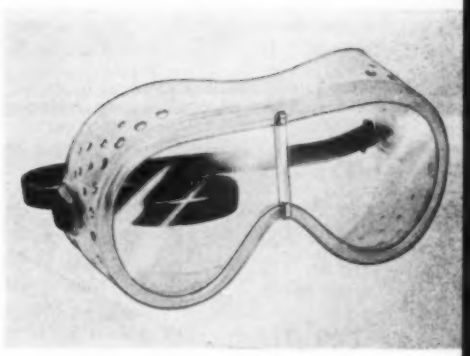


Quite naturally it is the lenses of protective eyewear that receive most of the publicity—lenses that can and do guard precious eyesight against the impact of flying particles, the splash of irritating chemicals, or the fatigue or damage from glare and invisible radiations. But when you are buying safety eyewear from reputable manufacturers, you are purchasing much more than just lenses—you are also buying frames, lens holders and temples that have been designed for maxiumum safety under impact and utilize materials that are not themselves dangerous or harmful.

Reliable manufacterers of eye protective equipment produce prod-

ALUMINIZED PLASTIC FACE SHIELD FOR HIGH-TEMPERATURE WORK

FLEXIBLE FRAME COVER GOGGLE



ucts that meet the requirements of the *American Standard Safety Code for Head, Eye and Respiratory Protection,* sponsored by the Department of the Navy, National Bureau of Standards, and U. S. Bureau of Mines. This article will outline some of the features and requirements for safety eyewear design as stated in the Safety Code. (Copies of the entire code Z2.1–1959 are available from the American Standards Association, Inc., 10 East 40th St., New York 16, N. Y.)

Materials and Test Methods

Materials used in the manufacture of eye protectors must combine mechanical strength and lightness of weight to a high degree, must be nonirritating to the skin when subjected to perspiration, must withstand frequent disinfection by the methods described below. Where metals are used they must be inherently corrosion resistant.

Disinfection: All materials shall be such as to withstand, without visible deterioration or discoloration, washing in detergents and warm water, rinsing to remove all traces of detergent, and disinfection by the following methods:

(1) Immersion for 10 minutes in a solution of formalin made by placing one part of 40 percent formaldehyde solution in 9 parts of water at a room temperature of 68 F.

(2) Subjection to a moist atmosphere of formaldehyde for a period of 10 minutes at a room temperature of 68 F.

(3) Immersion for 10 minutes in a solution of modified phenolics, hypochlorite, or quaternary ammonium compounds in strength specified by the manufacturer at a room temperature of 68 F.

Corrosion Resistance: Metal parts shall be tested for corrosion resistance by placing them in a boiling aqueous 10-percent (by weight) solution of sodium chloride for a period of 15 minutes. The parts upon being removed from this solution shall be immediately immersed in a 10-percent (by weight) aqueous solution of sodium chloride at a room temperature of 68 F. They shall then be removed from this solution and, without wiping off the adhering liquid, al-

PLASTIC EYESHIELD GOGGLES WITH ANTI-GLARE FILTER LENSES

other articles in MAY and JUNE

lowed to dry for 24 hours at room temperature. The metal parts shall then be rinsed in lukewarm water and allowed to dry. On visual inspection, the metal parts shall show no signs of roughening of the surface resulting from corrosion.

Water Absorption: Plastic parts shall be tested for water absorption and the results calculated in accordance with Test Method No. 7031 of Federal Specification L-P-406. The amount of the water absorbed shall not exceed 5 percent.

Flammability: *Eyecup Goggles*—Eyecup goggles shall be tested for flammability by use of a ⅝-inch-diameter Bunsen burner, adjusted for a ¾-inch-high non-luminous flame of commercial natural gas (1,000–1,200 British thermal units). The temple side of the specimen shall be held at the tip of this flame in a draft-free room and the time (in seconds) required to ignite the material so that it will remain burning after the flame is removed shall be determined. The time required to ignite the specimen in the manner described shall be not less than 4 seconds.

All Other Types of Goggles—Where plastic materials are used, such materials shall be slow burning. Cellulose nitrate, or materials having flammability charactistics approximating those of cellulose nitrate, shall not be used. Flammability of the materials shall be no greater than that exhibited by cellulose acetate or acetate butyrate.

Eyecup Goggles

There are two basic types of eyecup goggles: **Cup-Type Goggles,** to be worn by persons who do not wear corrective spectacles; **Cover-Cup-Type Goggles,** to fit over corrective spectacles.

Eyecup goggles consist of two eyecups, with lenses and lens retainers, connected by an adjustable bridge, and a replaceable and adjustable headband or other means for retaining the eyecups comfortably in front of the eyes.

Eyecup Material: Eyecups shall be made from a plastic or other material of such composition as to withstand the heat deformation, disinfection, water absorption, and flammability tests.

Vision and Fit: Eyecups shall be right and left in pairs and shall permit an effective angle of vision not less than 105 degrees, assuming that the pupil of the eye is located 17 millimeters behind the inner surface of the lens. The edge of the eyecup which bears against the face shall have a smooth surface free from roughness or irregularities which might exert undue pressure or cause discomfort to the wearer. The eyecups shall be of shape and size as to cover completely the entire eye sockets, and the depth of the eyecup shall be such that the lenses will not interfere with the eyelashes of the wearer. The eyecups of cover-cup-type goggles shall be designed so that they provide ample clearance and will not interfere with the spectacles of the wearer.

Lens Retainer: Each eyecup shall be provided with a lens retainer bearing evenly on the lens with sufficient pressure effectively to retain fragments in the event of lens breakage. The design shall be such as to permit the ready removal or replacement of lenses.

Models: Both the cup-type and cover-cup-type of goggle can be subdivided into three types according to their uses.

Chipper's Models provide protection against flying objects. The eyecups are ventilated in a manner to permit circulation of air. Ventilation openings shall be such as to exclude a spherical particle 0.04 inch in diameter.

Dust and Splash Models provide protection against relatively fine dust particles or liquid splashes. The eyecups are ventilated in a manner to permit circulation of air. The ventilation openings shall be baffled or screened to prevent the direct passage of dust or liquids into the interior of the eyecups.

Welder's and Cutter's Models provide protection against glare and injurious radiations. The basic designs may be modified to provide more protection against special hazards, but the modified equipment shall meet the same requirements as the basic design.

The lens retainers for welder's and cutter's models shall be such as to accommodate a filter lens, fiber gasket, and cover lens.

Eyecups shall be ventilated in a manner to permit circulation of air. The ventilation openings shall be baffled to prevent the passage of light rays into the interior of the eyecups.

Plastic Eyeshield Goggles

Plastic eyeshield goggles are designed to cover completely the eye sockets and the facial area immediately adjacent to and surrounding the eyes of the wearer to protect the eye from side exposure. Where required, the design shall be such that the goggles will fit over ordinary spectacles worn by the wearer. Goggles shall be so designed as to afford an effective angle of vision of not less than 105 degrees, assuming that the pupil of the eye is located 17 millimeters behind the inner surface of the lens. When lenses are not an integral part of the frame, the method of attachment of lens to frame shall be such that the lens will not be inwardly dislodged from its seat when it is subjected to the fracture-resistance tests.

Plastic eyeshield goggles shall provide protection against flying objects and, where required, against glare and injurious radiations. Where the goggles are used for protection against injurious light radiation, the lenses and frames shall meet the requirements of Maximum Transmittances of Infrared and Ultraviolet for Filter Lenses and the frames shall prevent the passage of injurious light rays.

The goggles shall consist of a frame of plastic material, lens or lenses, and a means of support such as an adjustable headband to retain the goggles in front of the eyes. The frame and lens need not be of the same material. The lens need not be an integral part of the goggles. The frame may be translucent, clear, or opaque, and may be ventilated or not, as required by its intended use. The edge of the frame which bears against the face shall have a smooth surface free from roughness or irregularities which might cause discomfort to the wearer.

Where plastic lenses are used in plastic eyeshield goggles, they shall not be less than 0.05 inch in thickness. If glass lenses are used, they

shall not be less than 3.0 millimeters nor more than 3.8 millimeters in thickness. Materials used shall be capable of withstanding the disinfection, corrosion resistance, water absorption, and flammability tests outlined above.

Flexible Fitting Goggles

These flexible fitting goggles provide eye protection from fine dusts, fumes, liquids, splashes, mists, and sprays. They consist of a frame (composed of a flexible, chemical-resistant, nontoxic, nonirritating, and slow-burning material, forming a lens holder), lenses, and a positive means of support on the face such as an adjustable headband of suitable material to retain the frame comfortably and snugly in place in front of the eyes. The lens holder shall be such that the lenses are held firmly and tightly and may be removed or replaced without the use of tools. The goggles may be ventilated or not, as required by their intended use. Where chemical goggles are ventilated, the openings shall be such as to render the goggles splashproof.

Plastic lenses used in flexible fitting goggles shall not be less than 0.050 inch in thickness. Materials used shall be capable of withstanding the disinfection, corrosion resistance, water absorption, and flammability tests outlined above.

Foundrymen's Goggles

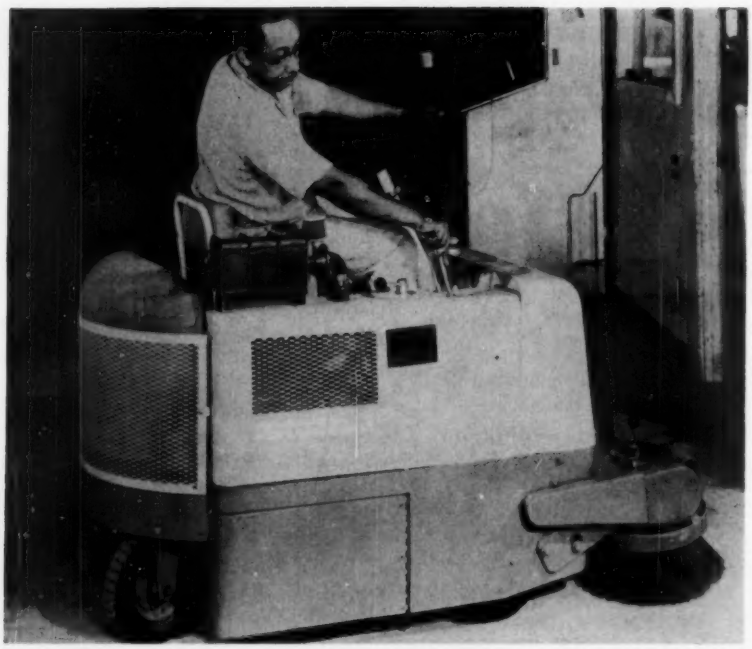
These types of goggles provide protection against impact and hot-metal splash hazards encountered in foundry operations such as melting, pouring, chipping, babbitting, grinding, and riveting. Where required they shall also provide protection against dusts.

Foundrymen's goggles consist of a mask made of a flexible, nonirritating, and noncombustible or slow-burning material, such as leather or flexible plastic, metal lens holder attached thereto, lenses, and a positive means of support on the face, such as an adjustable headband, to retain the mask comfortably and snugly in place in front of the eyes. The edge of the mask in contact with the face shall be provided with a binding of corduroy or other suitable material. The

Selection of Eye-and-Face Protective Devices

Hazard	Part To Be Protected	Permissible Protective Devices
Relatively large flying objects	Eyes, Face	*Goggles* Eyecup Goggles Plastic Eyeshield Goggles Foundrymen's Goggles *Spectacles* Metal or Plastic Frame Spectacles Plastic Eyeshield Spectacles *Face shields*
Dust and small flying particles	Eyes, Face	*Goggles* Eyecup Goggles Plastic Eyeshield Goggles Foundrymen's Goggles *Spectacles* Metal or Plastic Frame Spectacles Plastic Eyeshield Spectacles *Face shields*
Dust and wind	Eyes	*Goggles* Eyecup Goggles Plastic Eyeshield Goggles *Spectacles* Metal or Plastic Frame Spectacles Plastic Eyeshield Spectacles
Molten Metal	Eyes, Face	*Goggles* Eyecup Goggles Plastic Eyeshield Goggles Foundrymen's Goggles *Spectacles* Metal or Plastic Frame Spectacles Plastic Eyeshield Spectacles *Face shields*
Gases, fumes, and smokes	Eyes, Face	*Goggles* Flexible Fitting Goggles Plastic Eyeshield Goggles
Liquids	Eyes, Face	*Goggles* Flexible Fitting Goggles Plastic Eyeshield Goggles *Face shields*
Reflected light or glare	Eyes	*Goggles* Plastic Eyeshield Goggles *Spectacles* Metal or Plastic Frame Spectacles Plastic Eyeshield Spectacles
Injurious radiant energy (moderate)	Eyes	*Goggles* Eyecup Goggles *Face shields (with crown protector and chin protector)* *Helmets* *Hand shields*
Injurious radiant energy (intense)	Eyes, Face	*Helmets (with Metal or Plastic Frame Spectacles having filter lenses worn underneath)* *Hand shields (with user wearing Metal or Plastic Frame Spectacles having filter lenses)*

A SAFETY IDEA



Fumeless Sweeping Indoors or Out

This gasoline-powered sweeper now can operate just as safely indoors as out. The new, efficient and safe use of gasoline-powered sweepers indoors has been made possible by the installation of catalytic exhaust purifiers as optional accessory items by most of the leading equipment manufacturers. Widely used on industrial trucks, almost ten thousand of the exhaust purifier units on industrial vehicles are generating "cleaner safer air" indoors. These units work on the principle of catalytic oxidation which causes the deadly carbon monoxide fumes and other poisonous contaminants to be converted to relatively harmless carbon dioxide and water vapor. They are distributed nationally through material handling dealers, equipment manufacturers and exhaust-unit representatives.

Picture by courtesy of Oxy-Catalyst, Inc.

lens holder shall be so designed that the lenses are held firmly and tightly and may be readily removed or replaced. The lens holders shall be ventilated to permit circulation of air. Ventilation openings shall exclude a spherical particle 0.04 inch in diameter. For protection against heavy concentrations of dust, the use of a fine-mesh screen lining (e.g., 100-mesh screen) is recommended. Such lining shall be suitably and permanently fastened to the inside surface of each lens holder assembly.

Materials used shall be capable of withstanding the disinfection, corrosion-resistance, water-absorption, and flammability tests outlined above.

Metal or Plastic Frame Spectacles

Spectacles with metal or plastic frames shall provide protection to the eye from flying objects and, where required, from glare and injurious radiations. Those without side shields are intended to provide frontal eye protection only. Where side as well as frontal protection is required, the spectacles shall be provided with side shields. The edge of the side shield shall have a smooth finish or shall be padded.

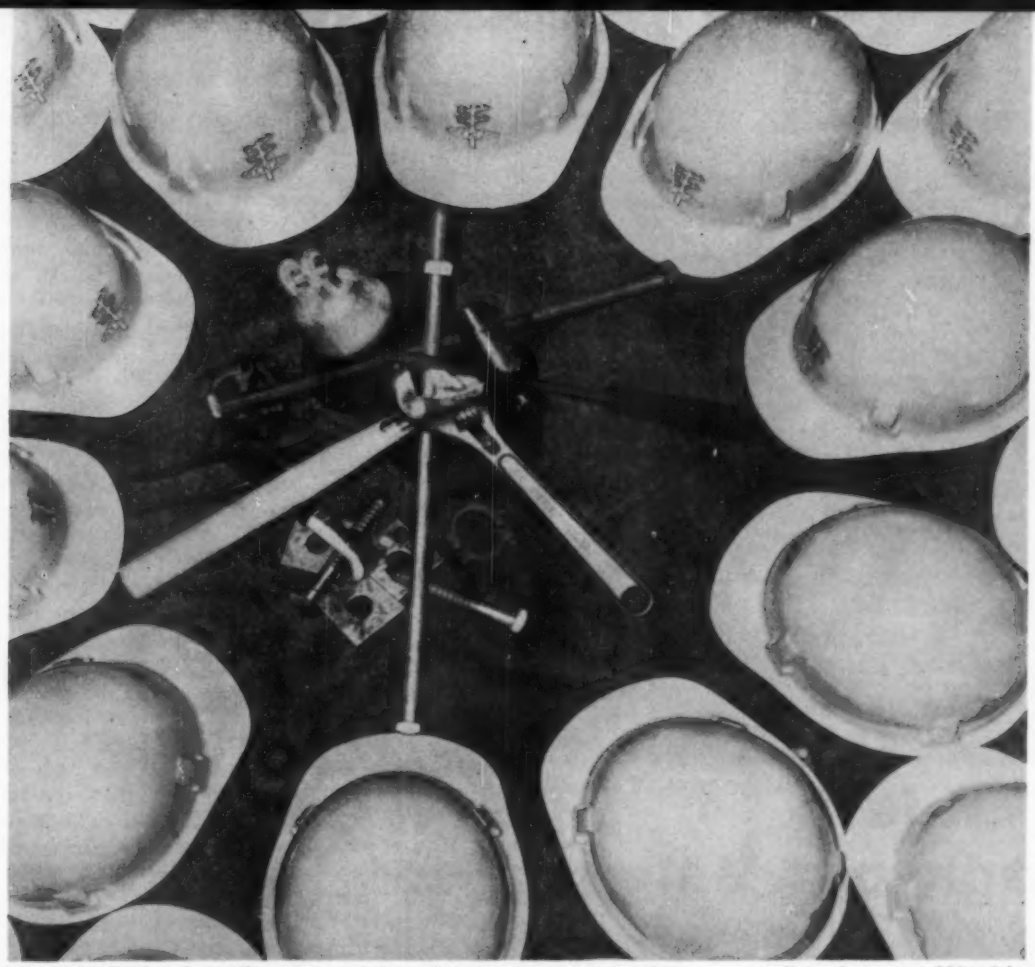
Spectacles shall consist of two lenses and two lens frames, of suitable size and shape for the purpose intended, connected by a nose bridge and supported on the face by temples or other suitable means. Where required, cable-type temples shall be adequately insulated over that portion in contact with the ears or head of the wearer. The spectacles shall be furnished with or without side shields, depending on their intended use. The frames and side shields when provided shall be made of metal or slow-burning plastic material.

The frames shall be designed for industrial exposure and shall bear a trade-mark identifying the manufacturer. The materials used shall be capable of withstanding the disinfection, corrosion resistance, water absorption, and flammability tests outlined above. That portion of the frame which supports the lenses shall be of sufficient strength to withstand, without breakage and without dislodging the lens, a fracture-resistance test for lenses.

Joint Test

The soldered or brazed joints of metal frame spectacles shall be given the following tests to demonstrate their strength and durability. The lens containers with lenses in place shall be gripped one in each hand, with the thumbs bearing on the outer surface near the bridge and the fingers on the inner surface of the lenses near the junction of the bridge and the lens container. The frames shall then be bent, the direction of motion being in a plane perpendicular to the surface of the lenses, until the outer surfaces of the lenses face each other, the outer ends of the frames touching. The frames shall then be bent back to their original shape and a careful inspection made for failure in the joints. All frames tested shall pass this test without developing visible joint failure.

(Continued on page 31)



This vivid display dramatizes the need for safety headgear by showing typical tools and parts which may be dropped by linemen on poles.

Picture by courtesy of Mine Safety Appliances Co.

It's a Safety Fact: There's No Time to Duck!

Safety officials at Wisconsin Public Service Corporation are using mathematics to dramatize the need for head protection on the job. Using typical linemen's tools as examples, the electric utility's safety advisors in Green Bay, Wisconsin have shown, mathematically, that it is just about impossible to duck objects falling from heights at which linemen usually work.

To prove their point a hypothetical incident in which a lineman drops a 12-ounce crescent wrench from a 65-foot pole is cited:

If a lineman drops a wrench, it would take him ½ second to realize he had dropped it and to yell "Headache." It would take a man on the ground another ¾ of a second to hear the warning and react to it. Even then, he would not know which way to dodge until he had looked up. This might take another ½ second. By the time he looked up the wrench would be four feet from the groundman's head and would be traveling at the rate of about 40 miles per hour.

The safety mathematicians' case becomes even more convincing when they turn to computing the striking force of various tools and parts dropped from heights at which linemen normally work. Here are a few examples:

Item	Weight	Striking Force When Dropped From 32 ft.	48 ft.
Square washer	3½ oz.	7 ft. lbs.	11.7 ft. lbs.
13.5 kv insulator	2 lbs. 9 oz.	88 ft. lbs.	132 ft. lbs.
Lag screw	3½ oz.	7 ft. lbs.	11.7 ft. lbs.
⅝ x 16 thru bolt	1 lb. 10 oz.	52 ft. lbs.	78 ft. lbs.
⅝ x 18 thru bolt	1 lb. 14 oz.	56 ft. lbs.	84 ft. lbs.
10" crescent wrench	12 oz.	24 ft. lbs.	36 ft. lbs.
12" crescent wrench	1½ lbs.	48 ft. lbs.	72 ft. lbs.
9" pliers	15 oz.	30 ft. lbs.	45 ft. lbs.

PREVENT THIS!

with HUNT Safety Lock-out Valves

A Hunt Safety Lock-Out Valve installed in a machine's main air supply line can prevent accidents . . . provides a simple, positive means of cutting off and exhausting all air pressure during maintenance, repair or shutdown.

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Safety Lock-Out Valves, 3-way types available in ⅜, ½, ¾ and 1 in. NPT sizes, employ Hunt's sliding sleeve valving principle, with no O-rings to blow out . . . a design proved by 30 years of dependable industrial service. With safety at stake, you can't afford to buy less than the best. Call your Hunt representative today.

For more information, write for Bulletin 611. Address Hunt Valve Company, Salem, Ohio, Dept. SM-461.

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★ Photo courtesy of SAFETY MAINTENANCE Magazine, N.Y.

3019

(For details, use Key # D-5 on card on page 1)

Industry Defense Courses

Because of the demand for this type of training, three more Staff College Courses in Industry Defense have been scheduled for 1961 at the OCDM National Operational Headquarters in Battle Creek, Michigan. The dates for these courses are: June 12–16, 1961; September 25–29, 1961; November 13–17, 1961.

The courses are sponsored by the OCDM Industry Office which is responsible for providing encouragement, information and technical guidance to business, commerce and industry on methods of preparing for survival and continuity of production following enemy attack or other major disaster.

This course covers the steps in planning and preparing for saving life and protecting property. It will provide industrial executives and government officials with practical information and training in practices and procedures for protection from nuclear attack and major peacetime disaster in industrial plants, institutions and office buildings. Thus it will help industrial firms achieve a greater measure of security through survival planning, and thereby give greater assurance of national survival.

The course is open to all who have responsibility for emergency and disaster control planning in industrial plants, institutions and other large buildings and facilities. They include industry defense coordinators, personnel directors, safety directors, training directors, security supervisors, plant protection officers, State and city industrial defense coordinators, and others who have related responsibilities. There is no charge for tuition. Comfortable rooms are available in OCDM buildings at $1.50 per day. For additional information, get in touch with your local Civil Defense Director, or with the Industry Office, Office of Civil Defense & Mobilization, Battle Creek, Mich.

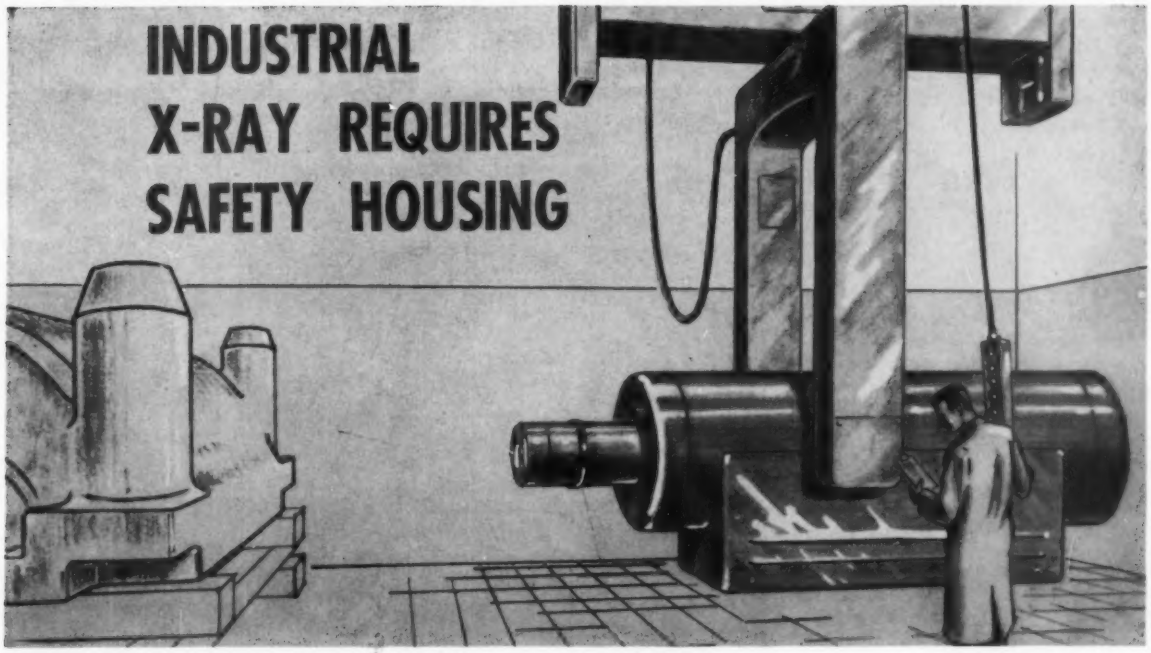
Western Maintenance Show

New conceptions of maintaining industrial plants looking toward the new problems created by nuclear and other super-scientific developments will be explored at the Western Plant Maintenance and Engineering Show & Conference scheduled for July 18–20 at Los Angeles' Pan Pacific Auditorium, according to R. L. Saling, regional manager of maintenance products Westinghouse Electric Corporation, who is the chairman of the Board of Sponsors.

Saling said they are scheduling meetings of industrial leaders within the next 30 days in both northern and southern California to analyze the most important new developments in plant engineering and maintenance which will be incorporated in the Los Angeles show.

The show is being produced under the guidance of Clapp & Poliak, the nation's largest firm of industrial exposition managers.

INDUSTRIAL X-RAY REQUIRES SAFETY HOUSING



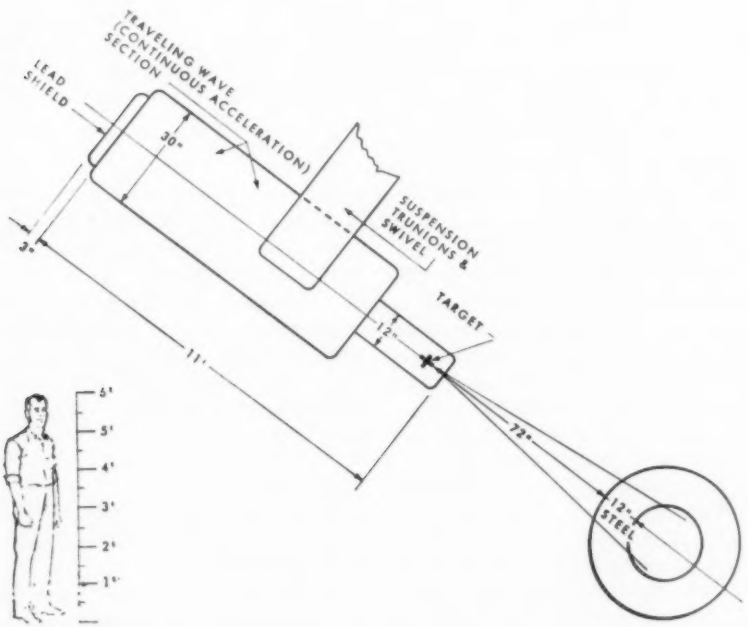
The versatile overhead crane mounting of the unit permits raising machine from floor level to height of 16 feet.

The world's most powerful x-ray machine specifically designed for high speed radiography in the metals industry will be installed at the A. O. Smith Corporation's Milwaukee, Wis., plant this spring. The eight million-electron-volt linear accelerator is designed to "see" through steel more than a foot thick and to furnish photographic proof of the soundness of such metal structures as core barrels for nuclear reactors and high pressure vessels for the petrochemical industry.

Warren Hendricksen, general manager of A. O. Smith's Atomic and Process Equipment division, said that the project would cost $700 thousand when completed. The installation, he pointed out, is part of the division's $4 million long-range expansion program which already has added 80,000 square feet to the division's operating space as well as such new equipment as a 20-foot boring mill and extra large overhead cranes to permit the fabrication of the largest types of vessels and other capital goods.

"The growing part that A. O. Smith is playing in the atomic energy field," Hendricksen continued, "plus the trend in the petrochemical industry toward higher pressures and vessels with correspondingly thicker walls, makes product reliability a greater necessity than ever.

"The linear accelerator will be an extremely valuable tool to insure even greater reliability, particularly in those products designed to handle nuclear matter or to operate at extremely high pressures."



A schematic drawing of the eight million-electron-volt linear accelerator. Six foot man indicates the size.

Smaller Units Used Abroad

Engineers for the company that is building the x-ray inspection equipment said that several lower power units now are in use for radiography in government labora-

tories in the United States and England. The largest of these produces only about one-sixth of the radiographic intensity of the equipment being built for A. O. Smith.

The accelerator produces its x-rays by "firing" high-energy electrons in a straight line down an evacuated tube. The electrons move down the tube, impelled by travelling radio-frequency waves. These "radar" pulses accelerate the electrons until they approach the speed of light, or 186,000 miles per second. At the end of the tube, the electrons strike a tungsten target and produce penetrating x-rays which are beamed upon the material to be examined.

The operating head or tube of the A. O. Smith's high-voltage unit will be 11-feet long and 30-inches in diameter, with a 12-inch radiation aperture.

Using eight million-electron-volts (8 MEV), the instrument will produce 6,000 roentgens (unit of x-ray measurement) per minute. While some other types of equipment employ higher voltages, they do not produce x-rays of such high intensity.

The instrument will be equipped with an x-ray source providing a choice of focal spot sizes of one millimeter and five millimeters. The respective outputs are 1,500 and 6,000 roentgens per minute, making possible the radiographic examination of very thick metals with both speed and clarity.

Large multi-layer pressure vessels such as the one shown above will be x-rayed by the new linear accelerator.

For example, at full power and at a distance of nine feet, the five-millimeter focal spot source will x-ray an 11-inch thickness of steel in about one minute, or 16-inches of steel in about 18 minutes. The one-millimeter focal spot source provides even greater clarity or resolution. It will radiograph eight-inches of steel in about one minute, or 14-inches of steel in about 30 minutes.

With the x-ray equipment currently in use at A. O. Smith, it would require more than an hour to x-ray only three to four inches of steel, and then the clarity or resolution would not be equal to that of the new equipment.

The accelerator will be housed in a special building, now under construction, with six-foot thick concrete walls. The new building also will contain special laboratories for processing and interpreting the films. The room housing the operating head will be 40 by 80 feet in size, and it will be possible to bring into the room railroad flat cars carrying the material to be radiographed.

In operation, the operating head

(Continued on page 28)

Another Injury Checked

He Kept Safety In Sight

Willett E. Laughlin, an employee of the Pipe Department of the Baytown Refinery of Humble Oil & Refining Co., was caulking a sewer pipe when suddenly some of the molten lead shot up into his face. The eyecup-type goggles he was wearing paid off. Although he suffered only slight facial burns, the hot lead would have seriously injured his eyes . . . but for the safety goggles.

Picture by courtesy of Humble Oil & Refining Co.

END CONCRETE SCALING

Do's and Don'ts

DO'S	DON'TS
DO Use 5 to 7% Entrained Air—With 1½" top-size aggregate, air content in the 5–6% range is required. For ¾" or 1" top-size aggregate, entrained air should be in the 6–7% range.	**DON'T Assume That Air Entrainment Alone Is Enough**—Without good aggregates, good cement, good workmanship, and careful attention to other details, adequate air entrainment is not enough to insure durability.
DO Use High-Strength Concrete—While relatively low strength concrete may serve the structural requirements, durability is secured only with low water-cement ratios producing low permeability and high-strength concrete.	**DON'T Add Water to the Concrete**—Adding water lowers strength and increases absorption, permeability and likelihood of scaling. If increased workability is required, have the concrete mix altered at the batching plant.
DO Use Quality and Tested Materials—Fine and coarse aggregate should meet ASTM C-33 or have a suitable service record. The cement should meet ASTM C-150, C-175, or C-205, should be of normal temperature at time of delivery and should have no false or flash setting tendency.	**DON'T Use Materials of Questionable Quality**—Coarse aggregate with high percentages of unsound particles will contribute to pop-outs and scaling. Cement that fails to meet the specification for false or flash setting tendencies or the use of hot cement can contribute to scaling and early disintegration.

Concrete pavements, parking areas, walks and curbs frequently are subjected to severe exposure. Excessive use of de-icing agents, frequent freezing and thawing, frequent wetting and drying, or cycles of extreme variations in temperature contribute to surface scaling and disintegration of concrete. Air-entrained concrete has demonstrated good resistance to scaling and disintegration, but maximum resistance to scaling and greatest durability can be achieved only when adequate air entrainment is combined with quality materials in properly proportioned concrete mixes of low water-cement ratios, low total water content, and with proper mixing, placing, finishing, curing and protection practices.

The Master Builders Company, a leading manufacturer of concrete component products, says, that for best results the accompanying Do's and Don'ts should be observed:

← Table continued on the next page

End Concrete Sealing (from page 23)

DO Use Good Workmanship—Proper placing and finishing are absolutely essential to long wearing surfaces. Quality of the concrete at the surface should be the same as that throughout the slab.

DON'T Overwork Concrete—Excessive or premature bullfloating, darbying or hand or machine floating, particularly with metal tools, contributes to bleeding and reduces air content and durability of the surface. Swirled or smooth finishes may be obtained using hand floats or trowels after the concrete has stiffened.

DO Use Proper Curing—Keeping concrete moist and at an adequate temperature for as long as possible helps to provide proper hydration of the cement and maximum strength. More complete hydration and higher strength mean greater resistance to scaling. Curing compounds of high quality properly applied are adequate.

DON'T Allow Concrete to Dry After Finishing—Concrete should be kept moist during the entire curing period. Alternate wetting and drying during the early age of concrete will cause crazing and increase the possibility of scaling.

DO Use a Surface Sealer, At Least on New Concrete—Surface treatments of oil increase resistance to scaling. One such treatment consists of applying boiled linseed oil to the clean dry concrete. Mineral oils are equally acceptable.

DON'T Apply Salt to New Unsealed Concrete—Unsealed concrete that is less than one year old may scale from the effects of salt. Where the presence of deicing agents cannot be eliminated (e.g. drippings from automobiles, etc.) the concrete surface must be treated with a sealer prior to the first winter if scaling is to be avoided.

Injury Rates Up In Third Quarter

Work injuries in manufacturing showed about the usual seasonal increase during the third quarter of 1960; however, there was encouraging improvement over the previous year, according to preliminary reports compiled by the U. S. Department of Labor's Bureau of Labor Statistics.

There were, on the average, 11.9 disabling injuries for each million man-hours worked during the third quarter of 1960. Although this rate was 7 percent above the previous quarter, it was 11 percent below the 1959 third quarter, and only slightly above the record low third-quarter rate of 11.8, set in 1958.

Although the July 1960 rate was 5 percent above that for June, it was still a record low for the month. The rate rose further, to a peak of 12.6 in August, and then fell to 11.4 in September, equalling the previous record low for that month.

The cumulative average for the first 9 months of 1960 was 11.4, compared with 12.1 in 1959. The only lower figure ever recorded for a like period was 10.9, in 1958, when manufacturing was well on its way toward posting its best safety record in the 18 years covered by the Bureau's published data.

The rates of individual industry classifications generally moved with the over-all trend. Of the 135 classifications for which data were available for both second and third quarters, 53 reported increases of one full point or more, while only 28 showed significant declines.

Comparisons over a longer period, however, showed more improvement. The 9-month rates for 45 industries decreased by 1 full point or more between 1959 and 1960, and only 22 increased significantly.

Five industries stood out as leaders in the improvement of the 9-month injury rates over those of a year ago. Logging, traditionally a high-rate industry, headed this group, dropping from 67.4 in 1959 to 60.7 in 1960. Others showing considerable improvement were: concrete, gypsum, and mineral wool, going from 28.5 to 22.0; poultry and small game dressing and packing, from 43.1 to 37.0; paving and roofing materials, from 11.0 to 5.3; and metal doors, sash, frame, and trim, from 20.6 to 15.6.

Synthetic rubber had the lowest rate for the first 9 months of 1960, 1.4 disabling injuries per million man-hours worked. This was followed by aircraft with a rate of 2.2, and electrical equipment for vehicles, radio tubes, and scientific instruments, each with a rate of 2.4. Other low rates were those for electric lamps (bulbs), 2.6; synthetic fibers, 2.7; and miscellaneous communications equipment, 2.7.

ISM Western Conference

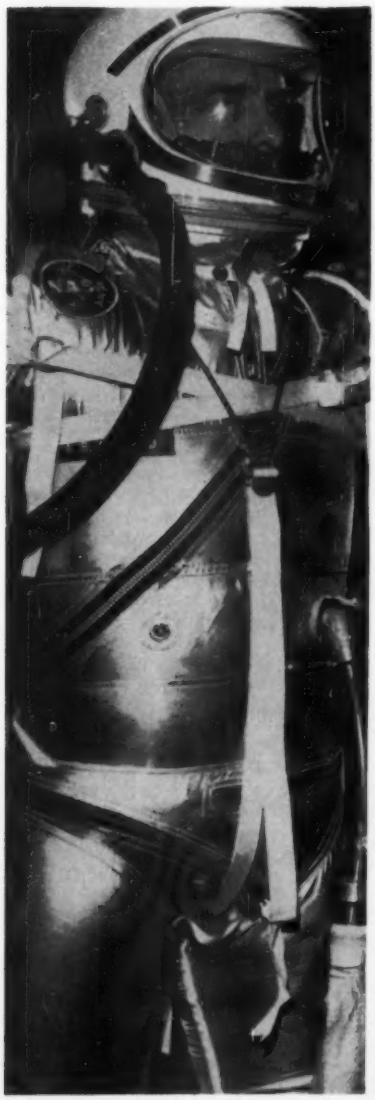
The Institute of Sanitation Management has announced the holding of its 1961 Western Regional Conference in Pasadena, California, April 20–21, at the Huntington-Sheraton Hotel. The meeting will feature six formal sessions in the following areas of activity: Public Buildings, Hospitals and Institutions, Establishing Cleaning and Sanitation Standards, Flour Mills and Bakeries, Food Processing Equipment and Design, Laws and Regulations.

General Chairman of the Western Conference is Gordon Miller, California and Hawaiian Sugar Refining Corporation, Los Angeles, and Sidney J. Coyne, Coyne Chemical Company, Los Angeles, is Program Chairman.

Formation of a new Indiana Chapter has also been announced. The new Chapter, with headquarters in Indianapolis, is the Institute's 15th local chapter in operation.

SAFETY SUITED FOR OUTER SPACE

When America's first astronaut penetrates space in NASA's Project Mercury spacecraft, he will explore a hostile void from a life-supporting capsule which holds every possible device to keep him alive.



Conditioned air flows into the Mercury astronaut's pressure suit through a waist connection, as pictured here.

His personal protection from heat and radiation lies in a double-walled pressure suit with an outer surface of aluminized nylon which reflects 90 percent of all radiant heat.

A similar aluminized fabric, developed four years ago as protective clothing for firefighters, has been used by Air Force crash crews, community and industrial firefighters, and by men who must work wherever intense radiant heat is a problem.

Maintenance workers at Esso Bayway Refinery, Linden, New Jersey, wear aluminized "proximity" suits, which provide head-to-toe protection from flame or molten splash, while they make in-service repairs and adjustments on operating units. This ability to work with "hot" units in the refinery eliminates costly delays. Firefighters at the Bayway refinery use the same suits to supplement their firefighting clothing, which also is aluminized.

Workers exposed to heat, dust and noxious fumes from precipitators at Missouri Valley Portland Cement Co., St. Louis, wear similar suits of aluminized asbestos.

Aluminized protective clothing for firefighters and crash crews has been used extensively by the Air Force.

Aluminized nylon, forming the outer layer of the pressure suit, was developed four years ago for firefighters.

Gaugers at Acme Steel Co., Riverdale, Illinois, use aluminized mitts to guard against hand burns while they inspect strip steel heated to 1,700 degrees Fahrenheit.

Insulating Blanket

Westinghouse Electric Corporation's steam division uses aluminized blankets to hold constant heat in large castings during welding. Welders cover castings with the aluminized surface face down. They kneel or sit safely on hot castings covered in this way, according to Westinghouse.

(Continued on next page)

A maintenance worker at Esso Refinery, Linden, N. J., scales an operating unit to make in-service adjustments.

The Project Mercury spacecraft will be a 1-ton "Earth" to the man inside. It will enable him to function as he would normally, by supplying oxygen and correct pressurization during the ascent, orbit and intense heat of re-entry into the Earth's atmosphere.

Drinking water, cameras, air-conditioning equipment and rockets for in-flight maneuvering are included in a complicated maze of automatic systems and reserve systems designed to work if primary devices fail during the 4½-hour flight.

"Personal Capsule"

Despite the fantastic degree of automation built into the spacecraft, the astronaut remains the captain of his ship. He can override automatic devices with manual controls.

Similarly, if capsule oxygen and pressurization are lost through malfunction or damage, he can fall back on his "personal capsule," the aluminized pressure suit, by closing the facepiece of his helmet.

According to the National Aeronautics and Space Administration, this simple act immediately surrounds him, inside his suit, with the same lifesaving environment originally provided by the spacecraft. Without it, he would die in 10 seconds.

Probably the most severe stress on man and capsule will come during the heat of re-entry into the Earth's atmosphere, when the blunt heat-shield of the spacecraft will be heated to 3,000 degrees Fahrenheit and cabin heat may exceed 150 degrees.

The aluminized nylon which forms the outer protective layer of the astronaut's pressure suit, combined with the air-conditioning system in the suit itself, will hold inside temperature at a maximum of 80 degrees during re-entry.

These pressure suits represent a new dimension in custom tailoring. Working with NASA and the Navy, a leading clothing manufacturer developed a one-piece, 20-pound suit. Over cotton underwear which has plastic spacer patches built in, the astronaut wears the double-walled pressure suit. Air flows in through a waist connection from a conditioning system.

Inflation Tests

Stretch nylon yarn reinforces the joints of the suit at elbows and knees. Under test, the suit did not burst until subjected to inflation four times greater than that normally required.

Protective clothing does not comprise the astronaut's entire attire; thermoelectric couples for measuring temperature differences will be fixed to his skin, and heart and lung action will be registered on a score of biomedical recorders.

Pictures by courtesy of Minnesota Mining & Mfg. Co. and National Aeronautics & Space Administration.

Your plant, regardless of size and in most any location, can provide employees the best in safety shoes . . . with little effort. Just write the Shoemobile in your area. It brings the store right to your door . . . stocked with HY-TEST *Anchor Flange Steel Box Toe* SAFETY SHOES in comfortable dress-shoe styles and job-built shoes and boots for men and women—HY-TEST SAFETY SHOES, Division, International Shoe Co., 1509 Washington, St. Louis 66, Mo.

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(For details, use Key # D-6 on card on page 1)

Edited by HENRY M. GROSMAN
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Master Superior Court, New Jersey
American Bar Ass'n, New Jersey Bar Ass'n,
Chairman, Committee on Workmen's Compensation, New Jersey Bar Association
National Federation Insurance Counsel
Past Commander, American Legion, Post 10,
. . . . . Newark, N. J.

COMPUTATION OF AWARD—Concurrent Employments Alleged To Be Similar—Combining Wages of Husband and Wife

Claimant appealed from a decision of the lower court reducing the amount of her award as a widow. Decedent and the claimant, his wife, were jointly employed as superintendents of an apartment building. The claimant was on the premises at all times while decedent attended to whatever superintendent duties were required of him during his spare time and when he was not working at his other employment as a boilermaker-welder. There was no claim that this latter employment was causally related to decedent's fatal heart attack. In determining the rate of compensation, the division held that it should be based on total income loss, and added together decedent's wages from both employments as superintendent and boilermaker-welder and arrived at a weekly income of $193.60, thereby entitling the claimant to receive benefits in the maximum amount of $40 per week. On appeal the lower court ruled that the wages as boilermaker-welder should not have been included in computing the award because the employments were essentially dissimilar and that even if they were similar, the workmen's compensation act did not provide for a combining of wages from separate employments. The court disposed of the claimant's instant appeal by deciding that the two employments were dissimilar, thereby leaving open the second question. The remaining issue was the method of computing the decedent's weekly wage with respect to his occupation as superintendent. The joint income of decedent and claimant for those duties was $220 per month. However, the claimant contended that she performed only minimal or nominal duties so that the entire wage was earned by the decedent. The court ruled that the contention was at odds with the facts and accordingly sustained the lower court's ruling of dividing the wage equally between them, arriving at a weekly wage of $25.38, thus entitling the claimant to the statutory minimum rate of compensation of $10 per week. Affirmed.

Maver vs. Dwelling Managers Co.; New Jersey Superior Court, Appellate Division. No. A-668-59. October 25th, 1960.

STRAIN AND EXERTION—Heart Attack—Heated Argument

An employer and its insurance carrier appealed from an award of the board for disability resulting from a heart attack found to have been precipitated by the emotional stress of "heated argument" between claimant, a proofreader, and his foreman, their dispute relating to responsibility for uncorrected errors in certain proofs. The employer's doctor attributed the attack to an underlying coronary condition and said that the described arguments were not long or severe enough to precipitate the attack. The claimant's doctor, while assuming a pre-existing condition and an episode of coronary insufficiency four days before the accident, found that the emotional stress of the argument precipitated the attack. Claimant testified as to two arguments. The first was about six minutes and the other from four to eight minutes. The language used by the foreman seemed to be innocuous and could not be said to be inflammatory. Co-employees testified that the tone of the foreman was above the normal speaking tone but that he was not shouting. The Court ruled that the arguments described did not involve emotional strain or tension greater than the countless irritations to which all workers are occasionally subjected. Reversed.

Coleman vs. Guide-Kalkhoff-Burr, Inc.; N. Y. Supreme Court, Appellate Division, 3rd Department, No. 2353. November 4th, 1960.

STRAIN AND EXERTION—Heart Attack—Emotional Stress

An award based on death due to a heart attack from emotional stress was reversed because no physical strain was involved and there was no particular incident which precipitated the attack. The deceased employee was in charge of mainte-

nance of the employer's airplanes. Corrosion developed on a wing of one of the planes and the employer's president became disturbed at the incident and, in apparent reference to the decedent, said that he did not like amateurs working for him. Decedent made several trips to Texas to check on the repairs being done to the plane. On the last trip he received a bill in the amount of $266,000. for the repair of the plane and he began to check the bill in detail seeking to have it reduced. While resting at a swimming pool, he suffered a heart-attack and died. The board entered an award and the employer appealed contending that an accident had not been established within the meaning of the workmen's compensation act. The employer did not challenge the finding of a connection between the attack and the emotional stress of his work. The court reversed the award. It stated that the instant case was distinguishable from previous cases in which compensation was not allowed in that the decedent here was in the midst of his problem when the attack occurred. It ruled, however, that there was no evidence of any particular event which precipitated the attack and, although such requirement may no longer be necessary, there was complete absence of any physical strain. Reversed.

Kilmas vs. Trans Caribbean Airways, Inc.; N. Y. Supreme Court, Appellate Div. 3rd Dept. No. 2336. Nov. 4th, 1960.

EXCLUSIVE REMEDY—Assault by Fellow Employee—Common-Law Action Against Employer

An employee was injured when he was assaulted by a fellow employee and he attempted to charge his employer with common-law liability on the ground that the employer retained the fellow employee in its employ with knowledge of his dangerous and assaultive propensities and failed to take reasonable precautions to secure plaintiff against injury. The defendant answered the complaint asserting that the action was barred by the workmen's compensation law. The court ruled that if the employee's injuries arose out of and in the course of his employment, they were compensable under the act and that his exclusive remedy was prescribed by that statute. If they did not arise out of and in the course of the employment, the employer would not be answerable for the injuries unless they resulted from an intentional tort by the employer. The complaint did not allege a cause of action for intentional tort. Moreover, the award received by the employee from the compensation board constituted a finding by the board that the injuries arose out of and in the course of employment, which finding is binding and conclusive until vacated or modified by direct proceedings under the compensation law. Accordingly, the employer's motion for judgment should have been granted. Reversed.

Dorso vs. Modern Biscuit Corp.; New York Supreme Court, Appellate Division, Second Judicial Department. No. 237. October 10th 1960.

ESCAPE FROM RHUS POISONING

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Best proof of the effectiveness of ImunIvy and ImunOak is the many companies who for 20 years have protected field crews during Poison Ivy and Oak seasons.

Can be injected by a physician intramuscularly or taken orally with water. In single dose 1cc vials four per Unit Pack.

Catalog No. R-97 ImunIvy and R-98 ImunOak.

Laboratory reports and field results available on request.

(For details, use Key # D-7 on card on page 1)

Industrial X-Ray

(from page 22)

will be suspended from an overhead crane to permit raising it from floor level to a height of 16 feet. It can be tilted to point its beam vertically downward or it can be rotated to 45° upward. However, its arc is limited so that it never can be aimed at the main entrances to the room. In addition, special interlocks prevent the operation of the equipment if any of the lead-shielded doors are left open.

With the exception of the control console, which is located in the laboratory section of the building, the linear accelerator will be completely self-contained on its mounting, including its own cooling system. To insure the greatest possible reliability, the main power tubes will need to operate at only one-third of their rated capacity to produce the maximum requirement of roentgens.

Pictures by courtesy of High Voltage Engineering Corp.

Workmen's Comp. Laws In Several States

New editions of the Kentucky, Mississippi, North Dakota, Pennsylvania and West Virginia workmen's compensation law pamphlets have been published by the Association of Casualty and Surety Companies. The Association said the revised pamphlets incorporate important changes in the laws of these five states. Each contains a digest and complete text of the workmen's compensation law and pertinent supplementary laws, including all amendments enacted by the 1959 or 1960 legislative sessions. The Pennsylvania pamphlet also contains a digest and text of its Occupational Disease Act. Annotations of cases decided since publication of the latest editions also are included.

Copies may be obtained from the Editor, Law Publications, Association of Casualty and Surety Companies, 60 John Street, New York 38, New York at $1.50 each, plus applicable sales tax, which price includes any supplement issued prior to re-publication of the pamphlet.

Vehicle Inspections

Co-publication of a new booklet "Why Motor Vehicle Inspection" has just been announced by the American Association of Motor Vehicle Administrators and the Auto Industries Highway Safety Committee. Copies of this concise story on the need to adopt official state programs for periodic examination of all vehicles using our streets and highways are being distributed to members of state legislatures by the President's Committee for Traffic Safety in support of its "Action Program" for traffic safety.

Significant in the section of the booklet pointing out the need for official vehicle inspection is the fact that the average death rate in states not now requiring periodic examination of vehicle condition is 13 percent above the national average of deaths per 100 million vehicle miles of travel. The booklet also points out that areas requiring inspection show significantly lower insurance premium rates for bodily injury and property damage than those without a check on the safe driving condition of motor vehicles.

The booklet also covers, briefly, how motor vehicle inspection programs are implemented; the items of the vehicles which need to be inspected periodically; the program's effectiveness in helping prevent trouble before it happens. For information, write to: M. R. Darlington, Jr., Managing Director, Auto Industries Highway Safety Committee, 2000 K St., N.W., Washington 6, D. C.

"I know you're asleep. Nothing's been through for an hour."

Chemistry for the Safety Man

Far from being a "grind" subject or a "lab" mystery, chemistry is a science men live by whether they build a fire in the fireplace, eat a "crackling" breakfast food or drive to work on synthetic rubber tires propelled by a complex chemical known as gasoline.

Consequently everyone has absorbed some chemical knowledge without realizing it, the U. S. Department of Labor reports in a just-issued primer on "Chemistry for the Safety Man." This general knowledge helps him and others understand hazards presented by commonly used materials, the Department says, although it recognizes the science as a vast and difficult subject for the professional chemist.

In easily understood language, the new primer defines chemistry and explains elements, compounds, atoms and molecules, chemical symbols and some basic equations. The pamphlet discusses matter in its three states, solids, liquids, and gases; and describes the properties and hazards of some important chemicals such as oxygen; acids, bases, and salts; hazardous metals; and solvents. Included are brief sections on flammable liquids, methods of determining chemical properties, and labeling of hazardous substances.

Sample copies of Bulletin No. 222, "Chemistry for the Safety Man," second in an environmental and chemical hazards series, may be obtained, so long as the supply lasts, from the Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C.

Standards Handbook

Precision Measurement and Calibration, National Bureau of Standards Handbook 77, has been issued in three volumes: *Vol. I, Electricity and Electronics,* 845 pages, $6.00; *Vol. II, Heat and Mechanics,* 965 pages, $6.75; *Vol. III, Optics, Metrology, and Radiation,* 1,025 pages, $7.00. (Order from Superintendent

of Documents, U. S. Government Printing Office, Washington 25, D. C.)

This handbook is a compilation of the more important National Bureau of Standards publications over a period of years, dealing with precision measurement and the calibration of standards. The handbook divides the subjects in the fields of precision measurement and calibration into three separate volumes: I, Electricity and Electronics; II, Heat and Mechanics; and III, Optics, Metrology, and Radiation. This new compilation is intended to serve as a quick reference source for workers in the field of standards, and also as a textbook and aid to scientists and engineers in standards laboratories.

The tremendous increase in industrial activity, particularly in the missile, rocket, and satellite fields, has created an unprecedented demand for precision measurement. This, in turn, is bringing about the creation of hundreds of new and highly specialized laboratories. Among the thousands of scientists, engineers and other workers connected with these laboratories are many not previously trained in work on standards. For all these persons, trained in the field or not, the Precision Measurement and Calibration Handbook will constitute an authority comparable to the familiar handbooks of chemistry, physics, and engineering.

The publications, originally issued as circulars, research papers, chapters of books, and articles in scientific periodicals, were selected for inclusion in the handbook on the basis of their having, in the past, best served the needs of scientists in specialized fields of measurement. The list of specific titles included in each volume is given in the Table of Contents of that volume. Because the three volumes are being sold separately, the subject index and authors' index are complete and identical in each volume.

Note: Foreign remittances must be in U. S. exchange and should include an additional one-fourth of the publication price to cover mailing cost.

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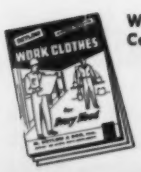

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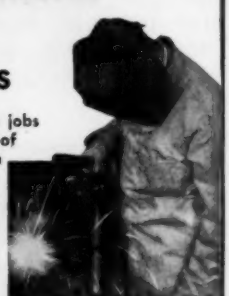

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(For details, use Key # D-8 on card on page 1)

Impact-Sensitive Materials

Maintaining a high standard of housekeeping cannot be overemphasized in the handling and storage of sensitive materials, the Manufacturing Chemists' Association, Inc., states in the latest in a series of safety guide pamphlets released recently. The pamphlet, SG-7, entitled "Recommended Safe Practices and Procedures—Storage and Handling of Shock and Impact Sensitive Materials," covers all such materials other than those classified as explosives. It stresses that many chemical substances, when stimulated by shock or impact, release sudden energy in the form of heat, or heat and gas. Release of heat results in the loss of the chemical itself and possibly in damage by fire to nearby combustibles. Explosion can result in damage to the process or storage structure and any prem-

ises within range of the blast or missiles. In either case, the Association says, toxic gases or flammable vapors may be produced thus creating extremely hazardous conditions.

"Some of the 'sensitive chemicals' are used regularly in normal commercial channels and are widely known; others are less common and their use my be confined to experimental work," the pamphlet states.

The Association urges that definite areas of responsibility should be spelled out and posted in order that only those authorized and educated in safe handling procedures have access to the sensitive materials.

In making emergency or regular repairs on buildings in which these materials are stored it is important that maintenance crews should be provided with a clearance or permit, signed by "operating" supervision testifying that the building or equipment has been made safe for the work to proceed.

Other safety precautions include: use of spark-resistant tools; direction of all operations by qualified personnel; prevention of accumulation of sensitive waste material and isolation of processing area and segregation of individual operations.

In addition, the pamphlet points out, particular attention should be given to protective equipment during repair or maintenance of facilities in areas where sensitive materials are stored or processed. Such equipment should consist of armorplate shields, hoods and remote control devices.

Of primary consideration in the manufacture of sensitive chemicals, the Association states, are two essentials for their safe storage and handling. They are:

1. Development of written procedures to cover the whole operation from storage of original materials to shipment of finished product, and;

2. Allocation of responsibility to ensure that there will be no deviation from this standard procedure.

Copies of SG-7 are available from the Manufacturing Chemists' Association, 1825 Connecticut Ave., N.W., Washington 9, D. C. for 20 cents a copy.

See K-LENS-M Booth 78 at The Greater New York Safety Convention and Exposition
(For details, use Key # D-9 on card on page 1)

Safety Eyewear

(from page 18)

Metal frame spectacles shall also be given a Flat Transverse Test and an Edge Transverse Test to demonstrate that the frames will withstand deformation.

Plastic Eyeshield Spectacles

Plastic eyeshield spectacles shall provide protection to the eye from flying objects and, where required, from glare and injurious radiation. Spectacles without side shields provide frontal protection only. Where side as well as frontal eye protection is required, the spectacles shall be provided with side shields.

Plastic eyeshield spectacles shall consist of a frame of metal, fiber or plastic material, plastic lens or lenses, and temples or other suitable means of support to retain the frame before the eyes. The lens

or lenses need not be an integral part of the frame. The spectacles shall have side shields, if required by their intended use.

Plastic lenses used in plastic eyeshield spectacles shall be not less than 0.050 inch in thickness. Materials used shall be capable of meeting the applicable requirements and withstanding the disinfection, corrosion resistance, water absorption, flammability and optical tests.

Face Shields

Face shields are designed to provide protection to the face (the front part of the head, including forehead, eyes, cheeks, nose, mouth, chin) and neck, where required, from flying particles and sprays of hazardous liquids and, in addition, to provide anti-glare protection where required.

Some typical uses for face shields include: woodworking operations where chips and particles fly; metal machining causing flying particles; buffing, polishing, wire brushing and grinding operations where flying particles or objects may strike the face; spot welding; handling hot or corrosive materials.

Face shields may be divided into three basic types: headgear without crown protector; headgear with crown protector and chin protector. Each of these styles shall accommodate any of three styles of windows: (1) clear transparent; (2) colored transparent; (3) wire screen.

Materials used in the manufacture of face shields shall combine mechanical strength and lightness of weight to a high degree, shall be nonirritating to the skin when subjected to perspiration, and shall be capable of withstanding frequent disinfection. Where metals are used, they shall be resistant to corrosion. Plastic materials shall be slow burning. Clear or colored plastic materials used in windows shall be of an optical grade and shall provide equivalent performance with the applicable optical, physical, and radiant-energy requirements of lenses used in safety goggles and spectacles.

Face shields shall consist essentially of a detachable transparent plastic window, wire-screen window, or opaque frame with window; a tilting support, an adjustable headgear, and, as required, a crown protector and chin protector.

Windows: The plastic or wire-screen window shall be designed to fit the contour of the window support and to maintain that contour.

There shall be attached to the headgear a window-supporting or window-holding member which shall consist of a band with or without crown protector. The window support shall position the window in front of the face in such a manner as to provide clearance for the nose and eyeglasses of the wearer.

The attachment of the window to the window support shall be such as to permit easy removal and replacement. The several sizes and types of windows shall be interchangeable for attachment to the window support.

Headgear: The headgear shall consist of at least a headband and a crown strap. The headgear shall be made from materials having low heat conductivity. The design shall be such as to hold the window and window support comfortably and firmly in place on the wearer's head, and shall provide for tilting the window away from the face.

Crown Protector: The crown protector shall be shaped to cover at least the frontal portion of the head and shall extend around each side at least to the edges of the window. It may be designed to be an integral part of the window support, or it may be a separate assembly. The design shall be such as to provide a comfortable clearance over the forehead and head of the wearer.

Chin Protector: The chin protector shall be shaped to cover at least the chin and upper part of the neck and shall extend at least to the edges of the window. The design shall be such as to provide a comfortable clearance under the chin of the wearer.

Special Types: When face shields are to be used in atmospheres or working areas requiring special conditions of nonconductivity or nonsparking, then all materials used shall meet these requirements. Face shields shall be plainly and permanently labeled, identifying them as "nonconductive face shield" or "nonsparking face shield."

Controls Vital Factors In Emergency Systems

In the event of panic or disaster, emergency systems are only as good as their electrical controls, the Winter Meeting of the American Institute of Electrical Engineers was told. Such emergency systems are utilized in schools, auditoriums, hospitals, public buildings, theatres, vital manufacturing processes and by the police, firemen and civilian defense workers, C. F. Willett and E. J. Dubois, of the Automatic Switch Company, West Newton, Mass., said in a paper, "Safety Aspects of Emergency Power Systems."

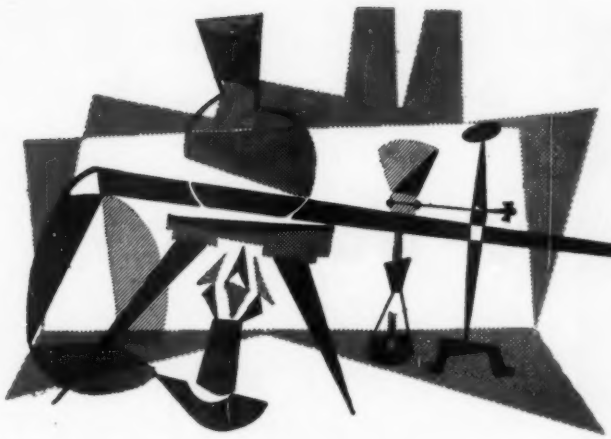
The emergency systems may consist of auxiliary lights and power from storage batteries, auxiliary generators or connections with other electric power systems.

"Since the emergency equipment may be called upon to operate infrequently, due to normal sources of power failure, it is extremely important that the entire emergency system be of high quality to insure its functioning every time," they observed.

Lighting Vital to Public Safety

The growth of population centers has brought "a corresponding increase in buildings where the general public can assemble" and where large areas are lighted by artificial illumination which must be dependable in order to avoid panic. Dependable lights in such places as hospitals are vital, they pointed out, and emergency sources of power to operate hospital facilities also are of paramount importance.

"It is frequently a problem in engineering specifications to obtain all related parts of an emergency system to be of equal quality . . . it is extremely important that the engineer . . . establish his requirements and insist that they be followed. The accessories required to control an emergency system, should they be of poor quality . . . can nullify the considerable cost of putting in the entire equipment," they concluded.



industrial hygiene

Rebound Tumblers May Jump to Painful Conclusions

An estimated nine million Americans are having a ball these days bouncing through the air like would-be astronauts, and safety experts and medical men are concerned because too many of the enthusiasts may be jumping to painful conclusions.

The sport of rebound tumbling finds youngsters and oldsters throughout the nation engaged in a mass assault on gravity. Commercial jumping centers are springing up in city after city, and "launching pads" can even be found in backyards.

Specialists in safety and the medical profession have plunged into the picture because they believe that too many untrained tumbling zealots aren't fully aware of the hazards involved in the popular sport.

Thomas N. Boate, manager of the accident prevention department of the Association of Casualty and Surety Companies, points out that "many accidents have been caused by inexperience and exuberance on the part of the participant, resulting in fatalities, permanent paralysis, broken or dislocated bones and internal injuries."

Mr. Boate said the Association's special hazards committee reports that one main danger in the bouncing boom results "primarily from the failure of the participant to realize that what goes up with force must come down with force and that he must adjust his timing, posture and reactions accordingly."

The American Medical Association also warns that these amateur acrobats face crippling and even fatal injuries and says that physicians and health agencies throughout the nation should be alerted to the problem.

The unfavorable accident frequency rates of rebound tumbling centers have resulted in the passage of ordinances in some localities to govern the specifications of equipment used and the procedures required of the operators, as well as to impose penalties on the participant and operator for violations. Los Angeles County pioneered in the passage of such legislation.

Rebound tumbling has gained wide acceptance as an organized sport in schools and colleges, where the activities are carried on under the supervision of trained coaches. The specifications for the equipment used, and the instruction provided, stress rigid safety regulation in addition to the athletic development of the participants.

Coaches attribute most accidents to pure carelessness. Most of them favor the tumbling sport because they say it helps youngsters develop coordination, balance, rhythm, muscular strength and confidence.

The special hazards committee has listed basic rules of rebound tumbling which it says should be taught to persons being introduced to the sport. The recommended rules follow:

(1) Master the basic bounces before trying the difficult stunts. (2) Never "travel" during bounces—stay in the center of the mat. (3) Don't jump from one mat to another. (4) Do not interfere with other participants. (5) Land with feet apart at shoulder width. (6) Break the force of the bounces by bending the knees. (7) Jump only when an adult is present. (8) Do not jump with another person. (9) Don't indulge in horseplay. (10) Step on and off the mat—don't jump. (11) Rest when you are tired—don't overdo.

Multiple Fans Enhance Mine Safety

Multiple main fans have been highly effective in control of mine ventilation, J. A. Boyle, Director of Mine Inspection, U. S. Steel Corp., Pittsburgh, and C. S. Conn, Ventilation Engineer, Frick District, U. S. Steel, Uniontown, Pa., told a meeting of the Coal Division of the Society of Mining Engineers. The Society is a constituent organization of the American Institute of Mining, Metallurgical, and Petroleum Engineers.

"In the Frick District," said their paper, "we have had more than 37 years' experience in the use of multiple-fan ventilation systems in our coal mines. In our Colonial field, with a long belt installation, we have mined 85 million tons of coal with the use of the multiple fan system. In our Palmer field, with the use of the same arrangement, we have mined 90 million tons of coal—a total of 175 million tons without one accident attributable to improper mine ventilation.

"The same system, fundamentally, has been installed

(Continued on page 39)

A Critical Look at Washrooms

Every work place must have adequate and sanitary facilities for the personal cleanliness and hygiene of its personnel. Everyone would agree that these facilities must at least meet certain minimal requirements. Yet the actual facilities, as provided and as maintained, range all the way from the superlative to the definitely dubious.

But there is really no excuse for the wide variation in wash-rooms and their equipment in view of the safety code drawn up by the American Standards Association to establish minimum requirements for sanitation in places of employment. The industrial sanitation codes of some states conform to these minimal requirements, while others are less restrictive and some states do not have requirements of any sort, as shown in the accompanying chart.

The following material is a summary of the American Standard code requirements dealing with change rooms, washing facilities, water supply, and toilet facilities. In addition, the code itself (Z4.1-1955) which is available for 50¢ from the American Standards Association, Inc., 10 E. 40th St., New York 16, N. Y., covers other aspects of health and hygiene maintenance such as housekeeping, waste disposal, pest control, lighting, ventilation, retiring rooms for women, lunch rooms, and food handling.

Change Rooms

As specified in the ASA code, wherever employees change from street to work clothes, either because it is the general practice or is required when the work involves exposure to excessive dirt, heat, fumes, vapor or moisture, separate change rooms with individual clothing storage facilities should be provided for each sex. In establishments where change rooms are not provided, there should be facilities for hanging outer garments.

If work clothing is exposed to contamination by poisonous, infectious, or irritating substances, then the change rooms should have facilities for storing street and work clothes in separate compartments or not in contact with each other.

If a worker is engaged in a process where his work clothing becomes wet or has to be washed between shifts, provision should be made to assure that the clothing is dry before re-use.

Washing Facilities

Every place of employment should have adequate facilities for maintaining personal cleanliness. They should be arranged to be reasonably convenient for the employees for whom they are intended and must be maintained in a sanitary condition.

For concerns with up to 100 employees, at least one lavatory or wash basin should be provided for every 20 employees (men or women) or portion thereof. The wash-up facilities should have adequate hot and cold water, preferably from a combination supply. Twenty-four inches of sink with individual faucet can be considered as equal to one lavatory. In all instances, a suitable cleaning agent must be provided at each wash place.

For concerns with over 100 employees, one additional lavatory or wash basin should be provided for each additional 25 persons or portion thereof.

If employees are exposed to skin contamination by poisonous, infectious, or irritating substances, one lavatory (with hot and cold water, preferably from a combination supply fixture) should be provided for every 5 employees.

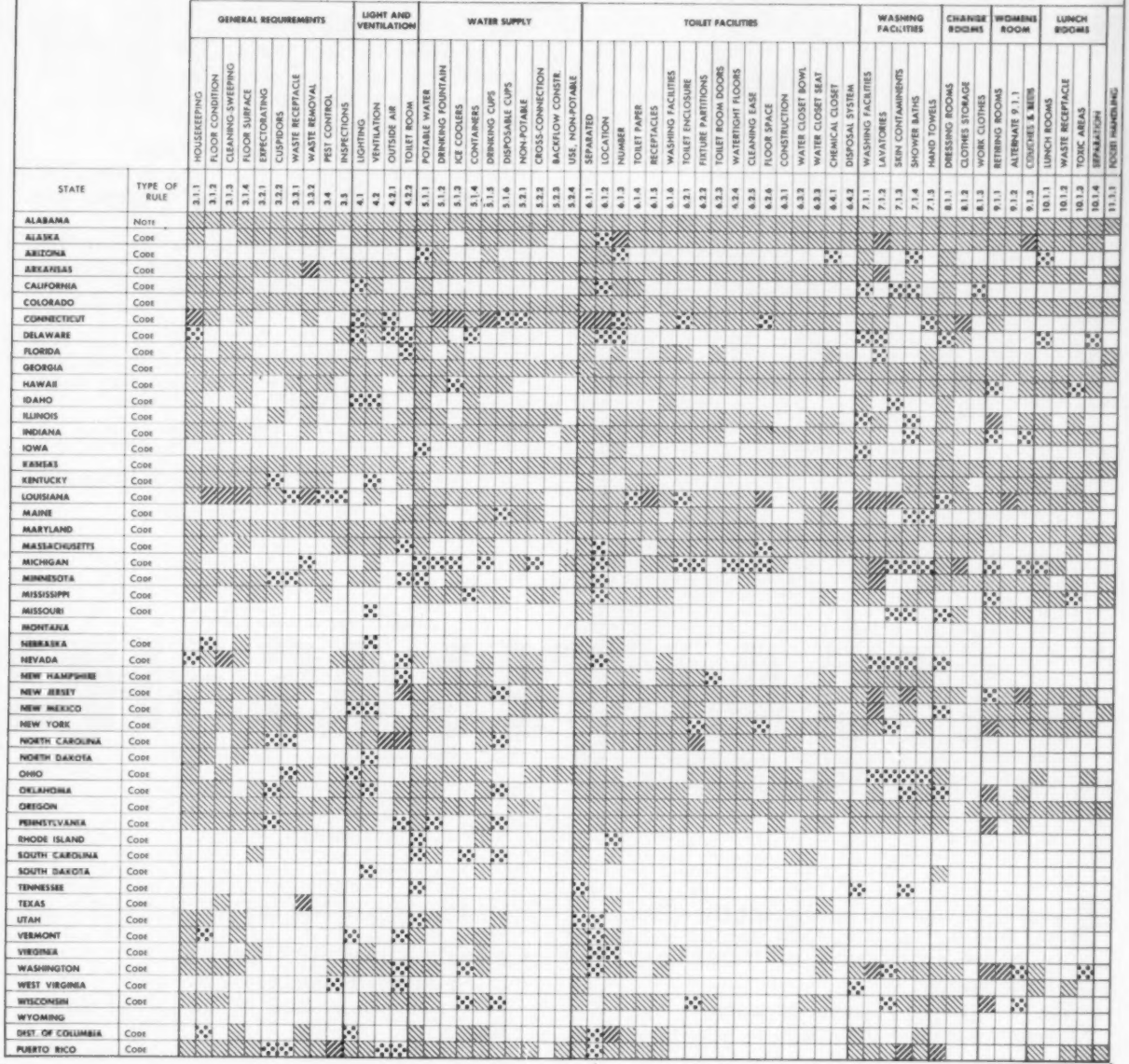
If there is exposure to excessive heat or skin contamination from poisonous, infectious, or irritating materials, one shower bath with hot and cold water from one fixture should be provided for every 15 employees.

All wash-rooms should have individual hand towels, or sections of towels, made of cloth or paper and also proper receptacles or other sanitary means for the disposal of used towels. Other equipment for drying the hands in a sanitary manner may be substituted for

(Continued on page 40)

SKIN PROTECTION SERIES
other articles in MARCH and MAY

COMPARISON OF STATE SAFETY CODES WITH ASA—SANITATION Z4.1–1955



STATE	TYPE OF RULE
ALABAMA	NOTE
ALASKA	CODE
ARIZONA	CODE
ARKANSAS	CODE
CALIFORNIA	CODE
COLORADO	CODE
CONNECTICUT	CODE
DELAWARE	CODE
FLORIDA	CODE
GEORGIA	CODE
HAWAII	CODE
IDAHO	CODE
ILLINOIS	CODE
INDIANA	CODE
IOWA	CODE
KANSAS	CODE
KENTUCKY	CODE
LOUISIANA	CODE
MAINE	CODE
MARYLAND	CODE
MASSACHUSETTS	CODE
MICHIGAN	CODE
MINNESOTA	CODE
MISSISSIPPI	CODE
MISSOURI	CODE
MONTANA	
NEBRASKA	CODE
NEVADA	CODE
NEW HAMPSHIRE	CODE
NEW JERSEY	CODE
NEW MEXICO	CODE
NEW YORK	CODE
NORTH CAROLINA	CODE
NORTH DAKOTA	CODE
OHIO	CODE
OKLAHOMA	CODE
OREGON	CODE
PENNSYLVANIA	CODE
RHODE ISLAND	CODE
SOUTH CAROLINA	CODE
SOUTH DAKOTA	CODE
TENNESSEE	CODE
TEXAS	CODE
UTAH	CODE
VERMONT	CODE
VIRGINIA	CODE
WASHINGTON	CODE
WEST VIRGINIA	CODE
WISCONSIN	CODE
WYOMING	
DIST. OF COLUMBIA	CODE
PUERTO RICO	CODE

LEGEND

- Same as or very similar to ASA Standards
- More Restrictive than ASA Standards
- Less Restrictive than ASA Standards
- No Code or Standard

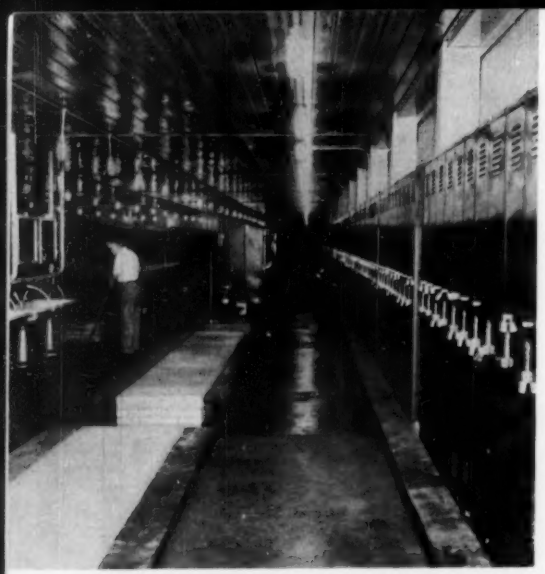
DEFINITION

CODE—a provision promulgated by a state having the force and effect of law. "Code" also includes statutory provisions enacted by state legislation.

NOTE

Recommends ASA Standard.

U. S. DEPARTMENT OF LABOR
Bureau of Labor Standards
DIVISION OF SAFETY



Unusual wash-up and locker room in the new steel plant is large, accommodating 2600 men, and located above floor. Area is completely heated and ventilated, has adequate maintenance staff.

Here are some of the ways in which "the best planning and most modern devices" are becoming visibly manifest:

- On the continuous pickling machine a 65,000 CFM (cubic feet per minute) fan removes sulphuric acid fumes and cleans the exhaust gases before they are discharged into the atmosphere.
- Beneath the rolling mill equipment a downdraft exhaust system carries off the oil mist.
- On the continuous annealing line a 13,000 CFM fan together with a wet collector removes the caustic cleaner fumes.
- In the new continuous galvanizing process the clouds of zinc and ammonium chloride fumes, associated with the older method, have been completely eliminated.
- On the electrolytic tin plating line exhaust systems carry off sulphuric acid mist, caustic cleaner fumes, hydrofluoric acid fume, chromate fume, soda ash dust and oil mist.
- Temperature control by heating and ventilation to avert extremes of heat and cold is at work in all key areas.
- Centralized wash and locker rooms.
- Latest approved illumination.
- Fully equipped medical laboratory and clinical facilities.
- A medical director who is also an internist familiar with the broad aspects of occupational medicine.
- A working force carefully selected for the task it is best fitted physically, mentally and emotionally to do, and adequate methods for checking on change in those qualities.

HEALTH IS IN

Sampling of employee opinion as to work in a new steel finishing mill along Lake Michigan's southern shore, nine miles east of Gary, Ind., yields this consensus: **It's a pleasure.**

The view is neither qualified nor forced. Sincerely and simply it reflects the esteem men hold for their mill.

The first contingents are enjoying an industrial environment as free from injury and illness as health engineering can make it. There is little doubt that the individual, not the machine, is master.

Management's desire to make the mill as modern as jet propulsion was described by the company's industrial hygienist speaking before the World Conference on Occupational Health:

"In anticipation of some concern by the residents of the area at having a steel plant in their community, and with the sincere desire to build a truly modern plant, those of us concerned with industrial hygiene, air pollution and stream pollution were instructed to see that this plant included the best planning and most modern devices to insure that the in-plant and outplant environment will be the finest to be found anywhere in the steel industry."

Among the chief architects of this emancipation are the industrial hygienists, whose business it is to plan improvements in working environment, and the engineers who translate plan into practice. The new mill costing more than $100 million most nearly represents the totality of their knowledge and experience.

Its buildings rapidly falling into place on the sands of Porter County, Ind., hard by Route 12, are expected to handle hot rolled coils shipped principally from Detroit. These they will convert into electrolytic tin plate, galvanized coils and sheets and hot and cold rolled sheet products.

THE AIR

A look around Indiana's new mill offers striking testimony to the high importance steelmakers attach to employee health

Many steelmaking operations hurl a potential threat at the working environment, one that the industrial hygienist must combat. Over the years he has introduced many improvements in older facilities, but as one steelman readily admitted: "It is much more satisfactory to insulate a structure while it's going up than to add insulation after it is finished."

Planning for Health

Whenever the hygienist, whose work is often referred to more descriptively as health engineering, is called in before construction plans have been finally approved, he has the head start he needs. Very often he can isolate the potential threat and, through lessons learned on similar equipment elsewhere in the company, keep it from ever materializing.

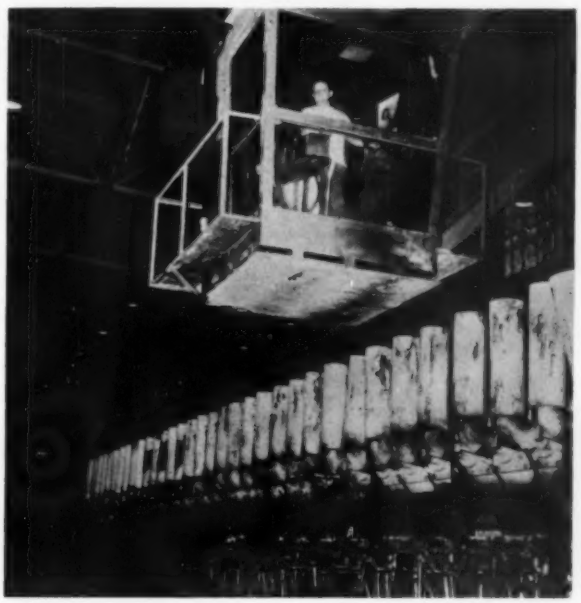
In this case the company's industrial hygienist had a head start of a year and a half.

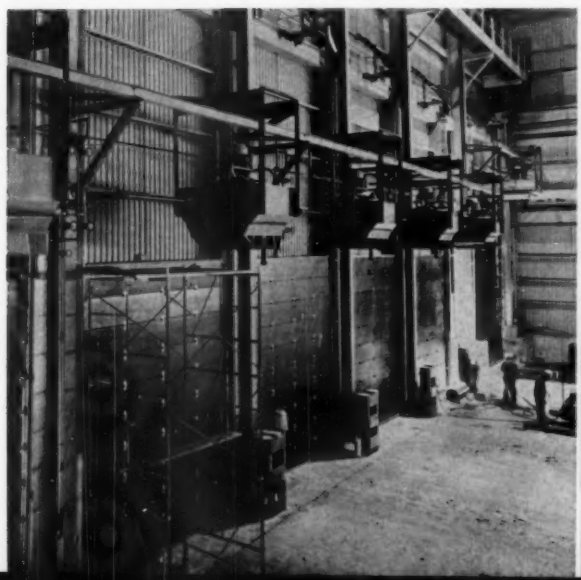
Trained men of his choice went into the area in April 1959 to sample water, air and noise conditions. Their findings were studied in concert with the engineering department. The purpose: to design control measures into the original plans to preserve a healthful environment in and around the new mill, and to avert costly correction and changes later on.

The industrial hygienist spent many weeks in the neighborhood of the new mill site. Much of his time in the early stages was consumed in working with the trio of planners the county had brought in to establish zoning.

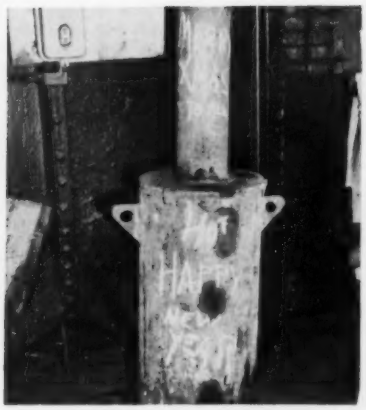
The requirements they initially had under consideration would not have permitted any mill to be oper-

(Continued on next page)





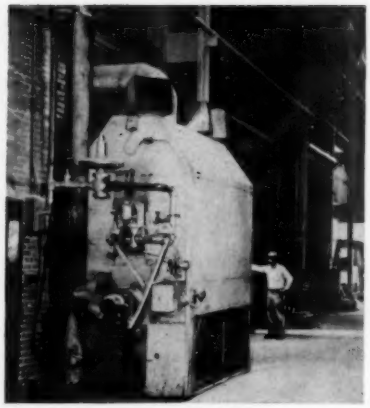
Evolution of Steel's Heating & Ventilating Equipment

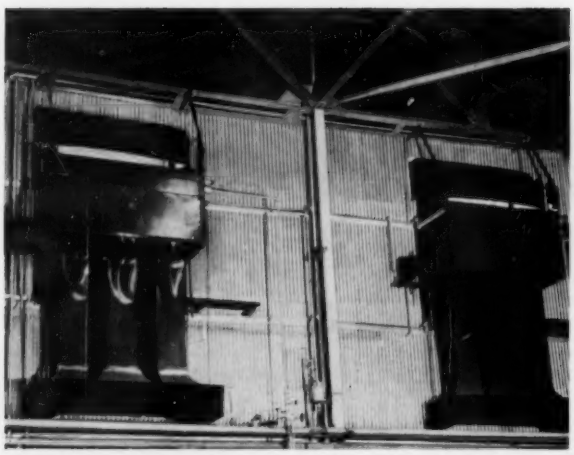


STEELWORKERS have a nostalgic spot in their hearts for the coke gas fired salamander (left), primitive heating device in the mills and reminiscent of any town's hot stove league. Men heated coffee and sandwiches on it and talked of spring.

BUT the salamander had its drawbacks: gave off bothersome fumes, threatened to burn the man who got too familiar, had limited heating range and offered no help for ventilating requirements.

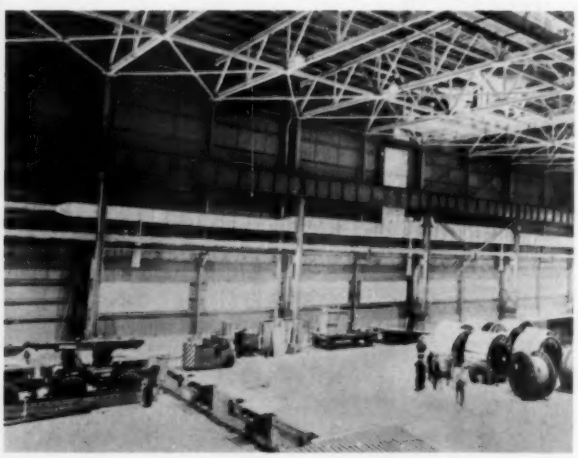
NEXT came a unit heater (right) that recirculated room air. It was safe but offered no aid to ventilation. Also, hundreds of them were required to heat the vast areas of the steel mills.





AND NOW this new mill has one of the latest heating and ventilating systems. The unit can be seen between truss and roof in upper right of picture. Master duct, not fully connected here, splits into ten drops, each one terminating about 10 feet above the floor level.

THEN came unit system shown at the left, one that both heated and ventilated. They draw in fresh air from the outside, but units required outside wall installation.



ated there. Its noise level, for instance, would have had to be lower than the wind blowing through the scrub oaks or the lapping of the waves on the shore.

Subsequently, in July 1959, the nearby town of Portage was incorporated. Representatives of three steel companies—the one chiefly involved and the two others with adjacent lake front property—and of the local public utilities then met with a committee on zoning and hammered out some reasonable restrictions.

Ground could then be broken and work launched to provide not only a working environment relatively free from contaminant but also insuring reasonable freedom from contamination of surrounding air and water.

Heat and Ventilation

Probably the most important single benefit to the individual is the heating and ventilating system, installed at a cost of a million dollars. It is reputed to be the largest in operation.

"Actually," the industrial hygienist explained, "this system is not so much a matter of cooling, as it is a

matter of controlling the temperature. This has taken a lot of our time and money for many years, and we think we now have the answer."

The problem today, he went on to say, is not with the acute case of heat exposure, but with the employee whose efficiency is reduced by extremes of heat and cold at work. Although it is economically impractical to air condition the large high-bay buildings used in the steel industry, it is practical to ventilate with outside make-up air (air to take the place of that driven out during operations) the lower portions occupied by the employee.

This system, tried and tested in another of the company's locations, is to be placed in all the so-called "critical areas" of the new mill: in the continuous annealing building, galvanize building, electrolytic tin line building and the tin warehouse.

Sanitation

In the construction of the new mill two other aspects of industrial hygiene came in for concentrated study and action: sanitation and illumination.

"As for sanitation," the industrial hygienist said, "we're putting into practice an idea we developed at another location: a large wash-up and locker room area located above the floor, completely heated and ventilated and adequately staffed for proper maintenance. We were among the first to put this idea into effect in the steel industry. Each area is built to accommodate 2,600 men."

In addition, all the plant buildings will have the advantage of the 1959 Recommended Standards for Illumination of the Illuminating Engineering Society. Color may also be used where helpful.

"We're not concerned primarily any longer with health hazards because we believe we have them under rigid control," he concluded. "We are now seeking to eliminate nuisances and to upgrade the environment. And that brings us closer to the field of ergonomics. Some day we'll know how much human energy is required to do a specific job.

"Then we'll all be making the most intelligent use of our human resources."

For the industry that first developed a mature technology in this country, that spearheaded America's growth and that pioneered in safety for workers, this would be another crowning mark of distinction.

By courtesy of American Iron & Steel Institute.

Multiple Fans
(from page 33)

in our expanding Robena operations. At its present stage of development we are using eight fans. We have mined 55 million tons with very encouraging results and again without any accidents attributable to ventilation."

They said the Robena operations have over 165 miles of main intake airways, of which 60 miles are primary haulage roads. There are 164 miles of return air courses "and it is noteworthy that this does not include 60 miles of bleeder entries. To date, active workings underground subtend a surface of 30 square miles."

Not just clean—but

TEXINOL-CLEAN!

All-purpose TEXINOL Cleaner gets rid of *all* the dirt, grit and scum. Removes old film left by previous washings with ordinary cleaners.

Use TEXINOL for stripping as well as daily cleaning. Recommended for all flooring, both resilient and rigid. In fact, you can use it on *any* surface where water can be applied — metal cabinets, tile walls, lavatories, office furniture, etc. Needs no rinsing. Can't scratch or mar.

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Branch offices in principal cities. In Toronto — J. W. Turner Co.

Send full information on Texinol, the all-purpose Cleaner.

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COPPUS "Blue Ribbon" Ventilator-Exhausters are portable and easily adaptable . . . for exhausting welding fumes or foul air from enclosed vessels. Mail coupon below for facts.

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- ☐ in tanks, tank cars
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- ☐ to stir up stagnant air wherever men are working or material is drying

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COPPUS BLOWERS

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Babbitt *Adjustable* **SPROCKET RIM**
with Chain Guide
CHANGES THAT DANGER ZONE TO A SAFETY ZONE

. . . enables you to ADD PLANT AREA

If re-aligning equipment will yield more working space, better production, lower costs—do it now. Save all space wasted for placing ladders to reach overhead valves. At the same time, convert Danger Zones to Safety Zones. Equip every overhead valve wheel in your plant with Babbitt Adjustable Sprocket Rims with Chain Guides.

- They simplify pipe layout.
- They fit any size valve wheel.
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- They save time and money.
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- A hot-galvanized rust proof chain is available for all sizes.

Babbitt Adjustable Sprocket Rims with Chain Guide are carried in stock by most mill supply houses. Just phone your mill supply salesman, or contact us direct.

Babbitt STEAM SPECIALTY CO.
BABBITT SQUARE, NEW BEDFORD, MASS., U.S.A.
(For details, use Key # D-13 on card on page 1)

Critical Look at Washrooms

from page 34)

towels, on approval of the authorities having jurisdiction. Towels for common or general use should be prohibited.

Water Supply

Potable water: All places of employment must have an adequate supply of potable water for drinking, personal cleanliness, and cooking purposes. Drinking water facilities should be provided within 200 feet of any location where employees are regularly working. If the work area is large and the number of employees relatively small, approved portable drink-water containers may be used.

Drinking fountains should be of a design and construction meeting the requirements of local health authorities. If the health authorities having jurisdiction have no requirements covering the installation of new drinking fountains, it is recommended that the American Standard Specifications for Drinking Fountains be used as a guide.

If drinking water is to be cooled by ice, the container must be so constructed that the ice does not come in contact with the water.

Barrels, pails, tanks or other open containers from which drinking water is to be dipped or poured should be prohibited, regardless of whether or not the container has a cover.

Common drinking cups should also be prohibited. Where cups are to be used only once, both a sanitary container for the unused cups and a receptacle for disposing of the used cups must be provided.

Non-Potable water: Outlets for water used for industrial, fire-fighting and other non-potable purposes should be tagged or have a sign clearly indicating that the water is unsafe and must not be used for drinking, washing, or cooking purposes.

There must be no cross-connection, open or potential, between water systems for drinking purposes and systems supplying non-potable water for other uses. Neither should there be any possibility of backflow of contaminated water into a potable water system.

Non-potable water should not be used for bathing or washing any part of a person's body, clothing, dishes, or premises, unless health authorities having jurisdiction specifically permit it.

Toilet Facilities

Places of employment should have adequate toilet facilities which are separate for each sex and readily accessible. Employees should not have to go more than 200 feet from the regular areas of employment to reach the toilet facilities, nor have to use more than one floor-to-floor flight of stairs. The sewage disposal method should meet the requirements of authorities having jurisdiction.

The number of toilet compartments for each sex should be provided according to the accompanying table, and based on the maximum number of persons of that sex employed at any one time. If persons other than employees are permitted to use the facilities, rea-

sonable allowance should be made in estimating the minimum number of toilet facilities required.

Number of Persons	Minimum Number of Facilities
1 to 9	1
10 to 24	2
25 to 49	3
50 to 74	4
75 to 100	5
Over 100	1 for each additional 30 persons

Where 10 or more men are employed, a urinal may be substituted for one of the toilet compartments, but the number of toilet compartments should not be reduced to less than two thirds of the number specified in the table. Two feet of trough urinal may be considered the equivalent of one individual urinal.

Every toilet compartment should have an adequate supply of toilet paper with a holder. Covered receptacles should also be provided in all toilet rooms used by women. Adequate washing facilities should be provided in every toilet room or adjacent to it.

Additional specifications for the construction of toilet rooms and construction and installation of toilet facilities are given in the American Standard code.

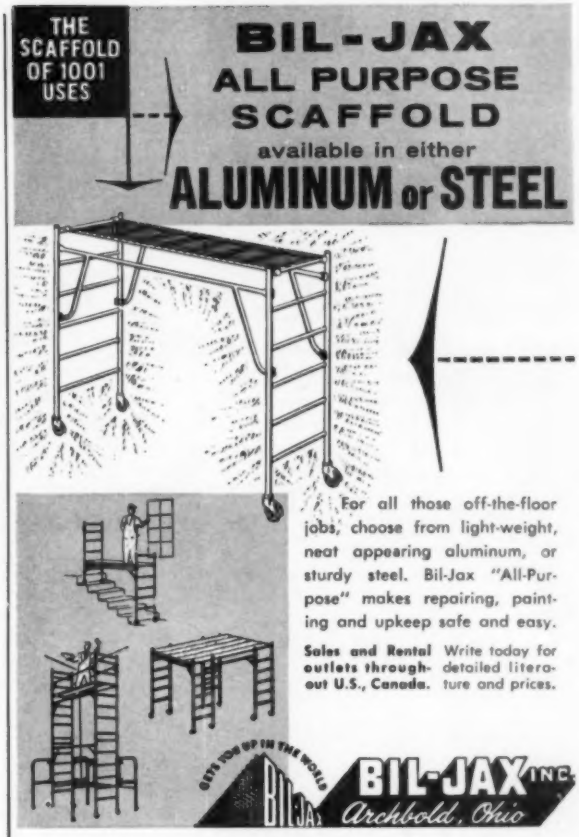
Picture by courtesy of The Moore Co.

Hospital Sanitation

Maintenance of a clean hygienic environment as the only valuable and consistently effective measure to prevent the spread of infections in hospitals, was emphasized by Dr. Ruth Kundsin, Assistant in Surgery at the Peter Bent Brigham Hospital in Boston, Mass., at a Sanitation Seminar held by the New York Chapter of the Institute of Sanitation Management. Dr. Kundsin recommended four areas of attack against the spread of hospital infection: air supply, fallout of particles from the air, floors, and carriers.

She detailed recommended procedures for cleaning and sanitizing operating and patients rooms, linens and blankets, and for control of air supply and ventilation in infectious rooms. Among the germicides in most frequent use, Dr. Kundsin listed synthetic phenolics, iodophors, and quaternaries.

As an example of the standards for control of cross infections at Peter Bent Brigham Hospital, Dr. Kundsin listed the following standards for air environment, based on volume air samples: Operating Room—5 or fewer organisms per square foot; Wards—20 or fewer organisms per square foot; Linen and Blankets—20 or fewer oragnisms per square foot. The same standards for number of organisms are applied to floors, except that the unit of measurment used is the square centimeter. The same standards may also be applied to particulate fallout from the air, she said, with the unit of measurement one minute.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Sales and Rental outlets throughout U.S., Canada. Write today for detailed literature and prices.
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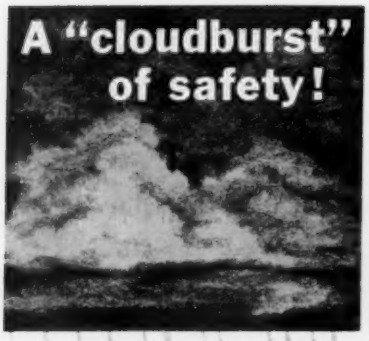
Double filters provide comfortable breathing. Soft rubber face mask gives air-tight fit. Sanitary face cloth protects against dermatitis or chafing. Patented exhalation valve guards against re-breathing stale air.

Cover scientifically designed respirators have been adopted as standard equipment by industries the world over. Free literature on request describing models for every purpose. See your safety equipment supplier or order sample direct. Model shown—only $2.25 postpaid.

H. S. COVER
Dept. 409, South Bend 14, Ind.

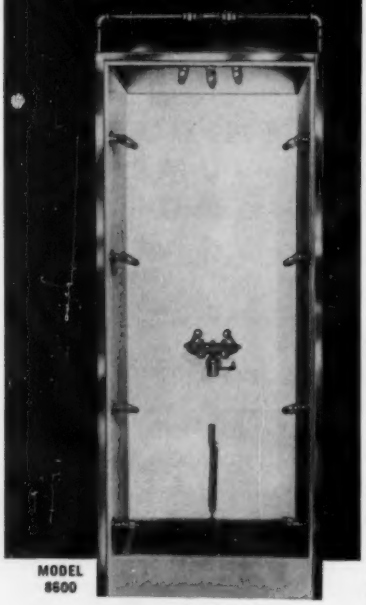
"Respirators for Industry Since 1894"

(For details, use Key # D-15 on card on page 1)



Volatile chemicals and propellants can cause serious accidents—but serious injuries need not result if water irrigation is immediately available! Haws Decontamination Booth provides the "cloudburst" that rapidly rids the body of harmful irritants. Victims walk on the foot treadle and are instantly bathed in water from a dozen nozzles. Haws Eye-Face Wash is simultaneously activated—a pressure controlled unit with a perforated face-spray ring and twin eye-wash heads. Booth is acid resisting fiberglass plastic, and is delivered complete, ready for tie-in to existing facilities. Write for details on the full line of models.

HAWS DECONTAMINATION BOOTH



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EXPORT DEPARTMENT: 19 Columbus Avenue
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(For details, use Key # D-16 on card on page 1)

Monsanto Chemical Company set an all-time safety record during 1960 with an accident-frequency rate of .61 major injuries per million man-hours worked at its 38 locations. The 1959 all-chemical industry safety record, the latest reported by the National Safety Council, is 3.32 major injuries per million man-hours worked.

Among Group I locations (those which work more than one million man-hours a year) the Springfield, Mass., plant won the President's Trophy for the best safety record during 1960. The plant operated the entire year—6,087,077 man-hours—without a major injury.

The President's Trophy for Group II locations (those which work between 200,000 and one million man-hours annually) was won by the El Dorado Refinery at El Dorado, Ark., which had no major injuries in 1960 in its 871,414 man-hours of operation.

The Boston Laboratories, Everett, Mass., in Group III (locations working less than 200,000 man-hours a year) won the President's Trophy in its group by operating injury-free during the year for a total of 190,183 man-hours.

The company's Executive Committee Award, which is made to the location in each group which had no major injuries during the year and the best man-hour record since its last major injury, was won by the Springfield, Mass., plant in Group I, with its 9,784,346 injury-free man-hours accumulated over one year and seven months of operation.

The Group II Executive Committee Award went to the Research & Engineering Division's Dayton, Ohio, laboratory, which has operated 2,189,398 man-hours in three years without a major injury. This laboratory also won the Annual Improvement Award in its group for the greatest improvement in accident frequency rate over the last five years.

The pipeline department, El Dorado, Ark., won the Group III Executive Committee Award by working 1,254,784 man-hours with no major injuries over the past nine years and two months.

Mound Laboratory, Miamisburg, Ohio, was declared the winner of the Group I Annual Improvement Award, and the Camden, N. J., plant won the Group III award.

• • •

The City of Miami Department of Water & Sewers presented 359 employees with safety awards in its largest mass ceremony in five years. Participating in the awarding of safe-worker cards and pins were: James Fulton, safety engineer for Bituminous Casualty Corp.; James F. McComb, vice president of Lon Worth Crow Insurance Agency of Miami; Howard R. Wright, department distribution superintendent and Joseph M. Brown, department personnel and safety supervisor. Of the group, 65 received a one-year award, 58 a two-year award, 101 a three-year award and 135 a four-year award. There are 450 employees in the department.

• • •

Employees of Stanley Steel, division of The Stanley Works, New Britain, Conn., were presented with a bronze plaque recently as an award for achieving 365 days or 519,744 man-hours without a lost-time or disabling injury. This was

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accomplished as of October, 1960. The new record compiled by the division was an additional 365 days over the previous year's accident-free record, with man-hours for both years totaling 1,162,180. The division's previous record was 451 consecutive days without a disabling injury.

The award was made at ceremonies attended by officials of the division and the corporation. Harold E. Pape, vice president and assistant to the president, presented the safety plaque to Clemens J. Diemand, vice president in charge of the steel division. He, in turn, made the award to Cosmo Mancini, group leader representing division employees. Harold C. Stipek, superintendent of the division, and A. C. Schaffrick, safety director of The Stanley Works, also commended the employees on their achievement.

The steel mill is classified as a heavy, hazardous industry where steel coils weighing from 100 to 15,000 lbs. are handled. Although much of the material handling is accomplished by mechanical means, considerable manual effort in processing the steel from the hot rolled raw stage to that of the finished product is done manually.

• • •

Howe Scales of Rutland, Vermont, has just completed a full year of production without a disabling industrial accident, reports Robert Zitzmann, Personnel Director and chairman of the Safety Committee. Over 1,000,000 man-hours of work were performed in this year by Howe personnel. This constitutes an all-time safety record in Howe's 104 year history.

• • •

A safety citation and plaque have been awarded to the Middleport, New York, headquarters of the Niagara Chemical Division, Food Machinery and Chemical Corporation, for 1,491,887 man hours without a disabling accident. Presented by the Liberty Mutual Insurance Company of Boston, the award covers almost three years of accident-free operation—from May 23, 1957 to March 14, 1960. Richard A. Broom, Manager of Niagara's Region One, accepted the award on behalf of the workers who made the record possible.

Niagara's Middleport plant—which produces agricultural pesticides for control of insects, weeds and plant diseases—pursues a carefully chartered safety program. Included are: regular inspection tours of production facilities; strict regulations pertaining to use of safety clothing and equipment; and periodic health checkups for those working with toxic materials.

• • •

The National Safety Council's Award of Honor was presented to Columbus General Depot, U. S. Army, Columbus, O., in recognition of the Depot's safety record for 1960. The Depot has also been awarded the Quartermaster Corps Award of Honor and has received

separate awards for the fifth, sixth and seventh million manhours of work without a disabling accident.

Mauricio Markman, safety director of the Quartermaster Corps in Washington, presented the award, which was accepted on behalf of the Depot by Brig. Gen. Harold H. Shaller, Commander.

Mr. Markman paid high tribute to the safety program being conducted by Depot Safety Director E. F. Chittenden and to Depot personnel, whose adherence to the rules made winning the award possible.

• • •

The Veterans Administration Center at Los Angeles, Calif., won the Grand Award in the Government Division of the 1960 National Fire Prevention contest, according to the National Fire Protection Association, Boston, Mass.

The annual contest received thousands of entries from the United States and Canada. It was the first time that top honors were received by a field station of the Veterans Administration.

The Los Angeles VA Center includes a 11512-bed general medical and surgical hospital, a 2,041-bed neuropsychiatric hospital and a 2,700-bed domiciliary under the management of Lowell C. Like, the VA disclosed. It has an average daily patient load of more than 6,000 veterans.

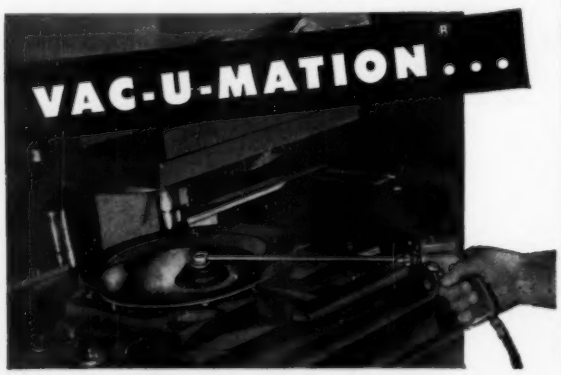
• • •

Several chapters of the Institute of Scrap Iron & Steel have presented safety awards to chapter members as a result of a national safety contest sponsored by the national organization. The safety contest, which covered the period from January 1 to October 31, 1960, is designed to help reduce the volume of accidents by making management and employees more safety conscious.

The Southern New England chapter presented a Certificate of Safety Achievement, for having no accidents, to J. Grossman & Son Inc., Meriden, Conn. Letters of Commendation went to the following firms for having an accident rate which was lower than the national average as established by the contest: Michael Schiavone & Sons Inc., New Haven; and Suismann & Blumenthal Inc., Hartford.

The Western New York chapter presented Certificates of Safety Achievement to the following: B. Levy Metals, Rochester; Waste Products Co., Niagara Falls; Weinstein Co., Jamestown; W. M. Spiegel Sons, Elmira; Samuel Schwartz Sons Inc., Auburn; R. & R. Salvage Inc., Buffalo; and Lancaster Iron & Metal Co., Lancaster. A Letter of Commendation went to I. Shulman & Son Co. Inc, Elmira.

The Michigan chapter presented Certificates of Safety Achievement to: McNichols Scrap Iron & Metal Co., Detroit; Owosso Iron & Metal Co., Owosso; Monson Iron & Metal Co., Pontiac; Louis Padnos Iron & Metal Co., Holland; and Martin



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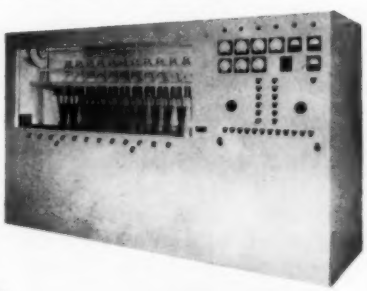

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HANCO INTERNATIONAL
Division of Hannon Electric Company
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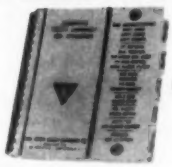
20 Years' Service In Supplying
SAFETY EQUIPMENT and APPLIANCES

Acme Gas Masks, Respirators, Emergency Showers, Eyewash Fountains, Dayson Bulletin Boards



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- S-section edge—no distortion.
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NO METAL PARTS

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8 COLORS: White, Gray, Red, Yellow, Orange, Green, Blue, Brown (molded-in, permanent abrasion-proof).

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In CANADA: Fibre-Metal (Canada) Limited, Toronto

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Bros. Mill & Foundry Supply Co., Benton Harbor. Letters of Commendation went to the following firms: S. Allen & Son Inc., Pontiac; Detroit Scrap Metals Co., Detroit; and Lipsett Steel Products Inc., River Rouge.

The Cincinnati chapter awarded Certificates of Safety Achievement to: Livingston & Co., Portsmouth; Harry L. Calig Co., South Zanesville; and Kasle Steel Compressing Co., Springfield. Letters of Commendation went to: Karl Nussbaum & Sons Inc., Louisville, and Louisville Scrap Material Co., Louisville.

The Wisconsin chapter presented Certificates of Safety Achievement to the following: H. & H. Scrap Iron & Metal Co., Wauwatosa, and Loeb Industries Inc., Watertown.

The Central Pennsylvania chapter presented Certificates of Safety Achievement to: William Cohen & Co., Easton; East York Iron & Steel Co., York; and Gordon Waste Co. Inc., Columbia.

The Chicago chapter presented a Certificate of Safety Achievement to Norfolk Iron & Metal Co., Norfolk, Nebr. Letters of Commendation went to the following firms: Calumet Iron & Supply Co., East Chicago, Ind., and McCabe Scrap Iron & Materials Co., Galesburg, Ill.

The Indiana chapter awarded a Certificate of Safety Achievement to Meyer Levin & Sons Inc., Warsaw, Ind.

• • •

Capping a year of consistent gains in safety on the job, Pennsylvania Railroad employees achieved an improvement of more than 12 percent in the injury rate, for all of 1960 compared with 1959, John T. Williams, manager of safety, has announced. The average improvement was nearly three times better than the advance made in 1959 over the record of 1958. Eight of the eleven scoring units on the railroad cut their injury rates during 1960.

The heavy repair shops at Altoona, Pa., and Wilmington, Del., advanced their safety rate by more than 28 percent, the best showing on the system. Among the larger operating regions, the Philadelphia region, with an improvement of almost 22 percent, took first place. The Buckeye region, headquarters at Cincinnati, was first among the smaller units, with an advance in safety of more than 14 percent. The dining car department improved by more than 17 percent.

Each region and department of the railroad competes in an annual safety contest sponsored by Allen J. Greenough, president. Certificates are awarded to managers of winning regions and system departments, and recognition is given to regional departments contributing to the record.

• • •

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American Gas Assoc. Safety Conference

How-to-do-it demonstrations of safety meetings using audio-visual aids will highlight the gas industry's 13th annual Accident Prevention Conference, slated for Sept. 12–13 in Dallas. The two-day conference at the Statler-Hilton Hotel will be co-sponsored by the American Gas Association and the Southern Gas Association. Lone Star Gas Co. and Southern Union Gas Co. will serve as co-hosts.

Twenty-seven "how-to" safety meetings will be demonstrated for the first time at the Dallas conference, according to B. J. Lorenz, manager of safety, Northern Indiana Public Service Co., and chairman of A.G.A.'s Accident Prevention Committee.

Audio-Visual Aids

Each session will show how a line supervisor conducts a safety meeting in his company, using audio-visual aids prepared by the A.G.A. committee. Sessions will be coordinated by James A. Hickey, safety coordinator, Southern Union Gas Co., and incoming chairman of the Southern Gas Association's Accident Prevention Council.

C. S. Stackpole, managing director of A.G.A., will be the featured speaker Sept. 12 at the conference's first morning general session in the Statler Hilton Embassy Room.

Charles R. Williams, safety director, The Gas Service Co., and chairman of the A.G.A. committee's program and speakers subcommittee, reports that a number of safety workshop sessions have been scheduled for the September conference. These will deal with motor vehicle safety, as well as safe practices in gas transmission, distribution and customer service operations.

John McMaster, safety engineer, NEGEA Service Corp., will coordinate the workshops.

Delegates also will have an opportunity to see what other companies are doing in accident prevention through a "Safety Ideas, Devices and Materials" display being planned and organized by Howard Jayne, safety supervisor, The Philadelphia Gas Works.

Mr. Williams reports that the "why's" and "how's" of "off-the-job" safety will be presented for the first time.

In addition, a national authority on the American Standard method of recording and measuring work injury experience (ASA Z16.1–1954) will discuss the method. Delegates will be urged to prepare questions on Z16.1–1954 to be answered by the speaker.

Lick Accidents With Trading Stamps

An appliance manufacturing subsidiary of Admiral Corporation hopes to stamp out accidents and lick lost time injuries with trading stamps. Stacy Searl, safety director of Midwest Manufacturing Corporation, has initiated a new six month contest in which a lucky person will be awarded 3,000 stamps each month.

Based on accidental injuries, the contest determines the winning department on the basis of lowest number of points per 10,000 man hours worked each month. A minor cut, burn or scratch, for example, is rated 2 points, while an injury requiring a visit to a doctor is 5 points. More serious injuries are rated at 10 points, while an injury not reported to first aid the same day it occurs will be charged 15 points. Any lost time injury automatically disqualifies the department for the month.

Reporting Incentive

At the end of each month a drawing will be held in the department accumulating the lowest number of points. The winner will receive 3000 stamps, equivalent to two books, and . . . presumably a sponge!

As an incentive to get Admiral employees to report accidental injuries as soon as they occur, the company has established a system whereby the points pertaining to any unreported injuries will become accumulative, depending on how serious they become.

THE FIRE FRONT

Clean-Up Campaign

A complete line of materials to promote 1961 Spring Clean-Up is now available from the National Fire Protection Association, international sponsor of this important annual fire safety campaign.

For local fire departments, chambers of commerce and other organizations sponsoring clean-up campaigns in their communities, the association has prepared a campaign kit with news releases, radio-TV spots, newspaper mats and other useful aids.

"Clean Up for Fire Safety" is the theme of the eye-catching two-color poster, which has Sparky the Fire Dog for its central figure. The same message and illustration appear on a window streamer and a coloring sheet for children, as well as on an attractive folder, "Clean Up for a Fire Safe Home."

Folders on a wide range of home and personal fire safety subjects are also available from the association. A new folder "Stop Fire On Your Job" has also been prepared for distribution to commercial and industrial workers.

Another useful item is a telephone sticker which has room for emergency numbers and is easily affixed to the base of the instrument.

For samples and information, write the Public Relations Dept., National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Foam Used for Coal Mine Fires

A recent experience in a coal mine fire in a large operation in Western Pennsylvania has proved the foam plug a valuable control factor, C. William Parisi, of Library, Pa. today reported to the Coal Division of the Society of Mining Engineers. Mr. Parisi is Director of Safety, Pittsburgh Coal Co. Summarizing it as "the first real test" of the method, Mr. Parisi said: "Combating coal mine fires in the Pittsburgh Seam is difficult due to overlying laminations of coal and shale which fall as a result of heat generated by the fire. This fire was fought directly with water, delivered at 200 gallons per minute for nine hours until it became apparent no progress was being made.

"Fire fighters were forced back repeatedly by smoke and roof conditions. A foam generator was placed in operation after a total elapsed time of eight hours from discovery of the fire. Intermittent operation of the foam generator enabled the fire fighters again to attack the fire directly with water until a decision was made to seal off the area.

"Continued use of the foam generator during sealing operations permitted some seals to be constructed within 200 feet of the fire operation. The foam plug proved capable of controlling coal mine fires and worthy of consideration as a valuable addition to conventional fire fighting equipment."

January Losses Up

Estimated fire losses in the United States during January amounted to $117,252,000 the National Board of Fire Underwriters has reported. According to Lewis A. Vincent, NBFU's general manager, this loss represents an increase of 26.1 percent over losses of $92,949,000 reported for January, 1960, and an increase of 15.1 percent over losses of $101,903,000 for last December. These estimated losses include an allowance for uninsured and unreported losses.

Sprinkler Systems

A new standard for the installation of sprinkler systems has been released by the National Fire Protection Association.

Providing detailed guidance on this subject, the 1960 edition of NFPA No. 13 incorporates a number of changes from earlier issues. Among them is a complete reorganization and renumbering of the provisions on location and spacing of sprinklers.

Widely Used Guide

Last revised in 1958, the standard dates back to 1896. It is almost universally used as the authoritative guide to proper sprinkler installation practices.

The revised text was adopted at the 1960 annual meeting of the National Fire Protection Association. It was prepared by a representative committee under the chairmanship of Gordon F. Price of the South-Eastern Underwriters Association, Atlanta.

Copies of the standard (NFPA No. 13, 176 pages, $1.50 per copy) are available from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

ON THE FIRE HORIZON

Research is developing new extinguishing materials for both the usual and unusual fires of TODAY . . . and TOMORROW.

Under present day technology, unusual fire hazards are constantly appearing in industry, involving the use of fuels which defy or resist extinguishment by customary fire extinguishing agents.

If a company or industry has such a problem, it has virtually no place to go to obtain a solution, except, perhaps, the Research and Development Division of a small Wisconsin chemical company, whose engineers have helped produce solutions for many of the most important fire extinguishing problems encountered by industry and government during the past ten years. The company's R & D staff consists of 29 engineers, chemists, engineering assistants, draftsmen, model makers and technicians.

Special Fire Problems

From the results of its investigations over the past ten years have come a number of new fire extinguishing agents. Some have been designed for specific hazards, while others cover a more general need for advanced fire protection.

Interestingly enough, many of the company's discoveries have come as a result of inquiries requested by organizations with special fire problems. A foam-compatible dry chemical was developed because the U. S. Navy wanted to use dry chemical for quick knock-down of aircraft crash fires to allow rescue operations, then follow up with the more time-consuming application of foam. Until then, it had been impossible to use foam and dry chemical together effectively because the foam would break down rapidly.

Thirty years ago, metal fires were almost unheard of except in chemistry lecture table demonstrations. Today, with new materials and methods developing all the time, metal fires are common phenomena among many other special problems in industrial fire protection.

A lithium fire problem of the Olin Mathieson Chemical Corporation brought about the development of a graphite base dry powder that could be expelled from extinguishing equipment. This was developed specifically for use on fires in lithium, although it is also used successfully in fires in other combustible metals.

The company's first extinguishing agent for combustible metals was developed when General Electric's Knolls Atomic Laboratory requested a more satisfactory method of extinguishing sodium fires. The company engineers developed not only a metal extinguishing agent, but an extinguisher to apply it. This was the first powdered extinguishant for combustible metals which could be applied from an extinguisher. Until then, the poor flowing qualities of other powdered extinguishants made it possible to apply them on metal fires only with a scoop or shovel. Subsequent investigations have shown that the powder is also effective in extinguishing fires in magnesium turnings or castings, aluminum, potassium, zirconium, titanium and the sodium-potassium alloy, NaK.

The company's research staff has also worked closely with the Naval Research Laboratory in its development of two extinguishing agents. One, a potassium bicarbonate dry chemical, was found to be more effective than the sodium bicarbonate dry chemical which is most common today. At first the new dry chemical was not so easy to keep free-flowing. However, improved methods of compounding it have resulted in better moisture repellency, less likelihood of caking in storage or in extinguishing equipment, and also in foam compatibility. (See picture.) The use of the material is expected to increase considerably over the next few years as problems of high cost and difficulty in obtaining raw material of proper purity are overcome.

The second Naval extinguishing agent is trimethoxyboroxine, which is used for magnesium fires. Although it is unusual because it is flammable, tests showed that its application on magnesium fires resulted in fast extinguishment. The compound leaves a glassy boric oxide coating on the metal which excludes air. It is used by the United States Navy primarily for extinguishing aircraft crash fires. The combustibility of the agent makes its use advisable only by trained firefighters.

Hydrocarbon Research

Typical of the company's painstaking attention to detail and evaluation in its research is a recent 18-month project on the extinguishing effectiveness of halogenated hydrocarbons. Conducting joint research with E. I. duPont de Nemours, Inc., the company undertook an impartial evaluation of bromotrifluoromethane and dibromodifluoromethane in addition to carbon tetrachloride, carbon dioxide, dry chemical and several other fluorobromohydrocarbons.

Even before the project could

Engineers show off a new fire extinguishing agent developed for the Navy Bureau of Weapons fire research program.

begin, techniques of evaluation had to be refined and equipment built. A very thorough program was carried out, including theoretical calculation of effectiveness as well as actual extinguishment in the laboratory and under simulated field conditions.

When it was determined that bromotrifluoromethane had great fire extinguishing potential, an extinguisher was designed to apply it. Although the design was not carried through to optimum efficiency, it was effective in showing the new agent's fire-killing properties. This extinguishant will probably find more and more widespread use for special hazards, although the problem of comparatively high cost still has to be solved.

The company's latest research project in the area of special fuels has just been completed on fires in metal alkyls. The company carried out joint investigations for three concerns—the Koppers Company, Ethyl Corporation and Stauffer Chemical Company. The tests resulted in the wider use of the graphite base dry powder and the development of a special dry chemical agent for use in the control and extinguishment of fires in triethylaluminum. The graphite powder agent was found to extinguish the burning liquid only by absorption while the special dry chemical would first extinguish the flame, then prevent reignition by absorption. Both have proved useful in handling these fires.

A significant amount of the company's research has been carried out for customers with special problems in fire hazards. In the early 1950's, the results of such research showed the advisability of an inquiry into the fundamentals of fire extinguishment. Earlier work had been conducted to evaluate extinguishing agents of the dry chemical type as well as halogenated hydrocarbons and carbon dioxide. These evaluations were made using standard gasoline fires in pans.

Available knowledge did not explain the reasons for the differences in fire extinguishing effectiveness of the various agents. It also became obvious that past explanations of the mechanism of extinguishment of dry chemical agents were erroneous. Accordingly, the first fundamental study was one limited to a mathematical analysis. In this particular phase, the company worked with an independent research group, and the results indicated that an important factor in the extinguishing action of dry chemical was the removal of active radicals from the flame. The results of this theoretical study agreed with the results of practical fire tests.

Fire Theory

A new phase of this investigation was started over a year ago when it became evident that purely theoretical studies substantiated by fire tests were not going to be adequate. The present study utilizes the most modern refinements in spectroscopic methods to determine exactly what happens in a flame

when an extinguishing agent of any type is added. These refinements enable changes within the flame to be determined at intervals measured in millionths of a second. In effect, this results in the equivalent of a slow motion picture of the flame as the extinguishing agent is introduced. These studies are by no means limited to powdered agents such as dry chemical, but include halogenated hydrocarbons and carbon dioxide as well as any new formulations that may appear to be suitable extinguishing agents.

The company is now carrying on research to obtain a really suitable dry chemical extinguishing agent for Class A fires as well as Class B and C fires. At present, Underwriters' Laboratories has listed two types of such a dry chemical, and the company expects to bring out such an extinguishing agent in the near future.

Dry Chemical Pioneer

The company's present research program builds on a broad base of theoretical and practical investigation—carried on since it acquired the original patents for dry chemical fire extinguishers in 1939. As the pioneer manufacturer in its field, it discovered the importance of controlling particle size in dry chemical and began an inquiry which continues to increase the effectiveness of its extinguishers.

Today its only purpose is to find better extinguishing agents than are now known for normal fire hazards, and extinguishing agents for the unusual fire hazards that are constantly appearing under present day technology.

Picture by courtesy of Ansul Chemical Co.

Fire Safety Films

A new 24 page catalogue of U. S. Government films, available free, describes many motion pictures depicting safety measures in the shop and on the highway, including a series of seven films in the "Accidents Don't Happen" series produced by the National Film Board of Canada. United World Films, Inc., distributor of U. S. Government films, is located at 1445 Park Avenue, New York 29, N. Y.

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Fire Communication Counts

Fighting a fire aboard a submarine is somewhat like trying to find a needle in a haystack and then threading it with twine while blindfolded.

It has to be this way, because these underwater craft are honeycombed with small compartments designed to utilize every inch of available space. As a result, fighting a submarine fire—while dangerous—is probably less difficult than finding the exact location of the blaze and its cause.

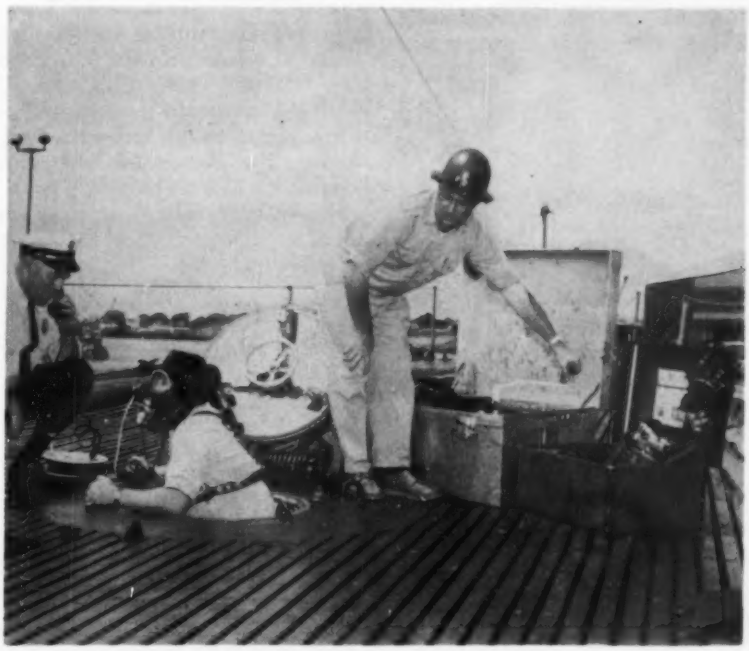
Sub fires sometimes break out in dry dock during repair work and "to say the least, you fight them differently," according to Chief C. E. Pitney of the Portsmouth Naval Shipyard Fire Department in New Hampshire.

"One of the most important tools is communication," he added, and told this story to illustrate his point:

"We had a smoke-filled area aboard this sub—no fire, just a lot of smoke. No one was sure just what the trouble was at first but we found out it was a mal-functioning diesel engine that had started to run away—and we didn't do it by rushing right in," the chief said.

"The engine room had filled with smoke and we were called to the scene. One of the ship's engineers, equipped with an oxygen generating breathing apparatus and a mask-attached telephone, entered the smoking area. He was able to communicate location and conditions to the skipper who, in turn, set correction procedure.

"It was just a case of turning some valves."



Chief C. E. Pitney, of the Portsmouth, N. H. Naval Shipyard Fire Department, supervises a fire drill aboard a sub.

Chief Pitney believes there is a definite advantage in having equipment of this type available. Aside from the fact that it's almost impossible to send a lot of men into a sub to combat a fire, "we just don't believe in it," he said. "We have to know what's going on first and then we send in the equipment and men needed."

In fighting a sub fire or any shipboard blaze—"when you get two or three decks or more below the main deck"—the Portsmouth department follows this procedure:

1. Control spread of fire.
2. Find location and possible cause of fire.
3. "Then do something about it," said Chief Pitney.

Normally, two firemen—equipped with life lines—are sent into a ship fire area. But sometimes, particularly on subs because "there just isn't room," only one man is able to "put your eyes down where the fire is."

Actually, there are places so small

Mask-phones, equipped with a sound-powered telephone system, have been adapted for breathing equipment.

aboard a sub, said Chief Pitney, that the man works his way through an opening and then puts his head back out so that he can be assisted in putting on breathing and communications equipment.

The shipyard fire department—which includes 33 men operating from two engine companies and one ladder company—is equipped with 25 oxygen generating units, a hose mask, and three mask-telephones. The oxygen breathing apparatus, which employs a replaceable chemical canister, generates its own oxygen supply, providing complete respiratory protection in any concentration of toxic gases and any condition of oxygen deficiency for a minimum of 45 minutes. One hundred feet of hose is available to Portsmouth firemen for use with the hose mask, designed with a single inhalation tube and a lightweight safety belt-type harness. The mask telephones, equipped with a sound-powered telephone system, have been adapted for use with the breathing equipment that has been fitted with speaking diaphragms.

Chief Pitney reported, "90 percent of our fires are on subs" and they require both the breathing and communication equipment. Although there have been exceptions, he said it's "almost a cardinal sin for us to fight a sub fire with water. We flood a compartment with carbon dioxide. This makes use of breathing apparatus a necessity."

In addition to sub and other firefighting, the Portsmouth shipyard department also employs a pair of explosion meters to supplement regular checks for gas leaks by other shipyard personnel.

Pictures by Courtesy of Mine Safety Appliances Co.

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For a complete list of 16mm sound Industrial Safety Films write or telephone

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(For details, use Key # D-24 on card on page 1)

Instrument Conference

The 17th International Instrument-Automation Conference & Exhibit of the Instrument Society of America will be held in New York City in 1962, in conjunction with the Society's annual meeting. The dates have been set for the period October 15 through 19, 1962, and the Exhibit will be staged in the New York Coliseum.

The annual national show during 1962 will complement the various symposia held under Society auspices each year. These will be continued, including those on Chemical & Petroleum Instrumentation; Power Instrumentation; Aero-Space Instrumentation, and Instrumental Methods of Analysis, as well as cosponsorship or cooperation with other national societies in conferences and symposia on Telemetering, Automatic Control, and Nuclear Instrumentation, to name a few.

1961 Conferences

During the remainder of 1961, ISA will hold two seasonal conferences and exhibits, one in Toronto, Canada, June 6–8, and its third of the year, the Fall Conference & Exhibit, in conjunction with the 16th annual meeting of the Society, in Los Angeles, Sept. 11–15.

Injury Repeater
(from page 11)

plant was not as comprehensive as in the study of truck drivers.

These two studies, and others as well, have established a relationship between attitudes and accidents through comparison with past accident experience. The value of the attitude test is of course as a pre-employment guide in evaluating new and potential employees. A low score on the Safety Index does not mean that the employee should not be hired; but it does mean that special training and follow-up or special placement may be advisable.

For example, assume that a job applicant has a low Safety Index, indicating that he is likely to have serious accidents. On the other hand, his specialized skills may be scarce at the time when the company needs them most. Two general courses of decision and action are possible. First, he can be observed to see whether he performs the various acts of his job in a safe manner. If not, he can be given intensive on-the-spot training until he demonstrates the development of safety habits in his work routine. This kind of safety training is recommended for these potential injury-repeaters because the more usual type of safety education—by exhorting or trying to impress them with the tragedy of accidents—does not get through to them. Obviously, such a person needs to be supervised closely to see that he continues to perform his job actions safely. If he does not respond to such training, another course is open. He may be considered for employment on less hazardous work. If such openings are not available at the time, he can be put on the waiting list if he is willing to accept such employment.

The correlation between the Safety Index results of the Job Attitudes Survey and the actual accident experience is convincing evidence of the usefulness of the tests as a tool for accident prevention. Additional applications of the survey in a broad spectrum of industries will give quantitative proof of the qualitative validity of the tests. For companies that are interested in exploring the possibilities of the Job Attitudes Survey,

some further comments might be made on the selection of matched pairs of employees.

First, in the case history of the metals plant the personnel officers selected the safe-worker group from men who had had no serious injuries, or not more than two, while the injury-repeater group were men who had had three or more serious injuries. This method of selecting "safe" workers was somewhat arbitrary and included persons who had had one or two accidents. Even so, the test scores produced a significant correlation of .44 with the safety experience. Employees with no accidents at all furnish a more valid safety criterion. Higher correlations were obtained when this "no accident" group was compared with any other group that had had injuries (first aid, doctor only, or lost-time). In other words, the Safety Index score distinguished significantly between the no-accident group and the accident groups. As a result, this company is now going through its records to find more no-accident employees to pair with those on the same job but who have had one or more serious injuries.

Secondly, this company did not initially report first-aid injuries, that is, those requiring merely the attention of a nurse instead of a doctor. The company is now assembling data on the totals of first-aid injuries for each employee in the study. This kind of data is highly desirable. Our original investigations showed that individuals who have a large number of first-aid injuries are more likely to have serious accidents than those having very few first-aid injuries. Thus, first-aid injuries can provide useful information on the level of negligence involved in accidents in manufacturing plants.

New Plant Applications

It would be useful to try out these tests in new industrial plants involving different machinery and new personnel. Actually this is being done in a nationally known company in the food processing and canning industry, which opened a new plant a short time ago. At this food processing plant, each new employee is given the test immediately after the decision to hire him is made. He is hired before the company knows his test score because the company wants to find out how well his Safety Index test score correlates with his on-the-job safety-accident experience. Very complete records of all injuries are being kept on each employee.

This particular study is of special importance. These are new employees who never worked for the company before, have never worked with its new machinery, and were hired by the company's standard employment methods. They come to their new employment without long-standing attitudes (positive or negative) toward their jobs, the company, or their associates. They start from scratch. It may be presumed that they will all be given similar job training and safety training. It will be some time before a thorough analysis can be made, but in the meantime the company is in a position to utilize the Safety Index scores should an employee show signs of becoming an injury-repeater.

It is fairly clear at this time that any company with an industrial accident problem can utilize this test for its job applicants as a means of reducing industrial accidents. It can also help employment executives and trainers to cope more effectively with the accident problem. On the basis of results now available, management has a yardstick for measuring the injury potential of the individual; but the more companies that explore the possibilities of this measurement tool, the more will become known of its applications to local or special situations. The Job Attitudes Survey also offers opportunity for experimenting with various types of safety training—developing techniques that will fill the needs of individual personality groups. Companies interested in utilizing the Job Attitudes Survey with its resulting Safety Index are invited to get in touch with Executive Analysis Corp., 76 Beaver St., New York 5, N. Y.

This article is partially based on a speech delivered at the 48th National Safety Congress.

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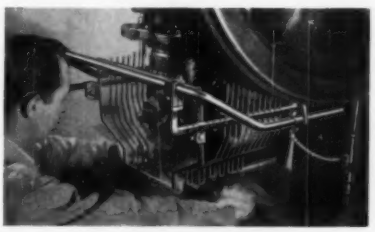

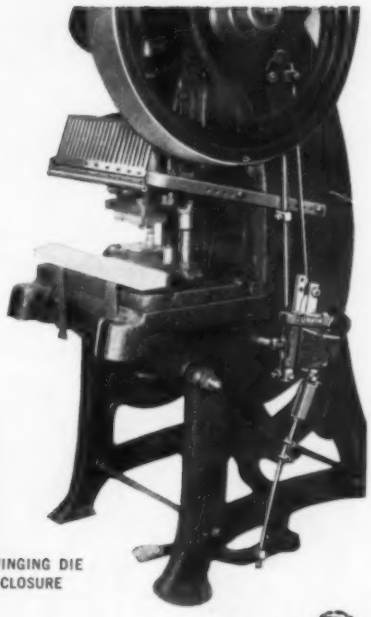

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SMOKE MASK FOR FIREMEN

New mask from Acme Protection Equipment Co. features the following: canister with See-O Indicating Window, which tells how long canister will protect against CO; spring loaded valve to decrease leakage of air into top of canister when not in use; new, abrasion resistant canvas pouch for canister and face piece when mask is out of use (pouch has large opening in bottom, heavy zipper in top); Full-Vision face piece to permit the all-around vision with the lenses close to the eyes.

For details, use **Key # RP-1** on inquiry card on page 1.

EMERGENCY ESCAPE MASK

Rapid exit from excessively contaminated or oxygen-deficient atmospheres is promised in a new Air Escape Mask announced by Mine Safety Appliances Co. The self-contained eight-pound unit, carried on a nylon harness, is designed for instant operation in emergencies. The demand regulator is incorporated directly into the compressed air cylinder, thus eliminating the need for manual valve operation. With mouthpiece and nose clip in place, mask is ready for service under normal breathing conditions, and provides protection under exertion for approximately five minutes.

The escape mask assembly can be worn comfortably until need arises. Cylinder and regulator are attached to an aluminum plate worn on the hip. The shoulder strap provides a "keeper" for retaining mouthpiece, exhalation valve, and nose clip assembly within easy reach. A filter protects the re-filling hose from entrance of contaminants such as rust.

For details, use **Key # RP-2** on inquiry card on page 1.

LIGHT-DUTY DUST RESPIRATOR

A new, all-plastic dust respirator has been brought out by Glendale

RESPIRATORY PROTECTION DEVELOPMENTS

Optical Co. A main economy feature is the permanent, washable foam filter element treated with DuPont Thiuram. Other features are: light weight; 3-piece all-plastic design; comfortable one-size fit for all faces. The outer frame is light gray, with a pliable polyethylene cushion. The inner frame locks the filter easily, securely into place to assure a perfect seal. Designed for protection against nuisance dusts and for paint spraying, the respirator is reported non-toxic, non-allergenic.

For details, use **Key # RP-3** on inquiry card on page 1.

TEST GAUGE FOR BREATHING APPARATUS

Oxygen and compressed air breathing equipment can be subjected to the following tests with Type RZ 22 Universal Test Gauge,

a product of Draeger Oxygen Apparatus Corp.: leakage during positive pressure and negative pressure in the apparatus; initiating pressure of the lung demand valve; opening resistance of the positive pressure valve; measurement of volume of the constant flow; measurement of content of the breathing bag; measurement of the initiating volume of the lung demand valve; functioning of the alarm signal, etc.

The apparatus contains an instrument panel into which are built the actual pressure gauge, 4-way tap, spill-valve or pressure-regulating valve, a threaded socket for coupling the breathing apparatus to be tested, and a bellows for moving the air. The test gauge is being distributed by New Jersey Safety Equipment Co.

For details, use **Key # RP-4** on inquiry card on page 1.

ROCKET FUEL GAS MASK

A rocket propellant gas mask and canister is available from Willson Products Div. of Ray-O-Vac Co. It provides protection against dangerous elements in hypergolic liquid rocket propellants: red fuming nitric acid (RFNA); unsymmetrical dimethyl hydrazine (UDMH); hydrazine; hydrogen peroxide; kerosene; aniline; and splashes from nitrogen tetroxide and fluorine liquids. New Willson rocket propellant canister meets specifications of the Protective Development Division, Army Chemical Research and Development Laboratories.

Equipment available includes gas mask with full facepiece; gas mask with half facepiece; basic rocket propellant canister with standard threaded nozzle; and special military type canister with added filter protection against radioactivie and bacteriological dusts. Canisters can

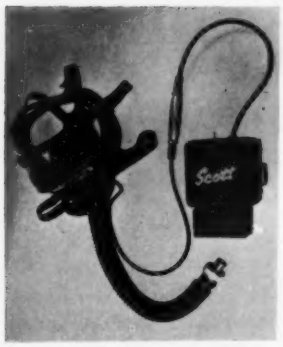
be carried on front or back of wearer, and have a four-year shelf life. Masks are made of black rubber. Full-face mask directs inhaled air over safety lenses to prevent fogging. Flexible corrugated breathing tubes, threaded connectors, metal guards and exhalation valves protect against splashing liquids.

For details, use **Key # RP-5** on inquiry card on page 1.

APPROVED PAINT RESPIRATOR

A new respirator for protection against sprays and vapors of enamels, lacquers and lead-based paints has been developed by the American Optical Co. This is the first paint spray respirator to be approved by the U. S. Bureau of Mines. The AO Safety Products Division says the unit is more compact than others on the market. It consists of a rubber face piece, covering the nose and mouth, and two chemical cartridges. The latter contain pre-filters to catch paint droplets and an inner unit to filter out hazardous fumes and vapors. Any of 16 other cartridges can be used in the basic face piece for protection against a wide range of respiratory hazards. Screw-in cartridges are easily changed. Unit is available either with or without goggles.

For details, use **Key # RP-6** on inquiry card on page 1.



SPEAKER UNIT FOR RESPIRATORY EQUIPMENT

A lightweight, compact, powerful speaking device, called the Voice-Pak, has been designed by Scott Aviation Corp. for use with protective breathing equipment. Voice is transmitted through a small powerful microphone to a strongly protected, waterproof speaker attached to the belt. The unit is completely transistorized. It comes complete with pen-light type batteries, Scottoramic mask with nosecup, breathing tube and regulator coupling. The lightweight unit fits all Scott Air-Paks. Intended for use in hazardous atmospheres to enable emergency crews, maintenance men and technicians to maintain communications.

For details, use **Key # RP-7** on inquiry card on page 1.

COMPACT EMERGENCY BREATHING APPARATUS

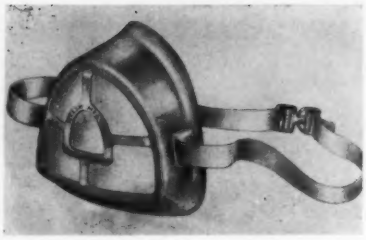
Self-contained breathing devices to protect against respiratory hazards in fire fighting and general emergency conditions are offered by Rockwood Sprinkler Co. The PocketAire units feature pure oxygen, lightness of weight, "escape" cylinders as extra precautions, and leakproof masks. Each model contains two cylinders, one of which is a 5-minute unit for use in returning to safety when the working cylinder is exhausted. Available with 25-, 15-, or 5-minute working cylinders. Largest model weighs 9 lbs. All are easily attachable and adaptable to wear under fire-resistant suits or hoods.

For details, use **Key # RP-8** on inquiry card on page 1.

AIR-TIGHT HEADGEAR SEAL

A Bureau of Mines approved, Tite Seal Headgear that produces a complete air-tight seal with just two adjustments—one on top and one in back—has been developed by Willson Products. Contour fitting plastic in the headgear allows easy, comfortable fit on any size or shape head. For anyone using the same mask all the time, adjustment can be made just once for even faster service. Safety hats and fire helmets are worn without obstruction from the patented headgear. It is available on airline respirators and Willson's complete line of gas masks. Straps that once obstructed cleaning by dangling in the middle of the face-piece have been eliminated. Mask and headgear are cleaned easily and quickly with soap and hot water.

For details, use **Key # RP-9** on inquiry card on page 1.



PAINT-NUISANCE DUST MASK

A lightweight polyethylene nuisance dust mask, known as the Bantam, has been developed by the Welsh Mfg. Co. to offer protection in intermittent, non-toxic paint spraying operations, as well as from nuisance dust. The entire unit, consisting of outer and inner frames, filter and headbands, weighs less than one ounce. The polymer filter can be washed and reused, and is not affected chemically by water, soap, oils, detergents or perspiration. Mask filters minute dust particles and resists paint pigments.

For details, use **Key # RP-10** on inquiry card on page 1.

HALF-HOUR BREATHING APPARATUS

Dense smoke or lack of oxygen is no problem to firemen wearing the M-S-A half-hour Chemox made by Mine Safety Appliances Company. With a simplified canister designed to reduce operating costs, the self-contained breathing equipment also features a fully automatic relief valve and a monocular lens facepiece for unobstructed vision. M-S-A engineers have also developed an optional unit that provides instant operation even at temperatures below zero.

For details, use **Key # RP-11** on inquiry card on page 1.

RESPIRATOR FOR PAINT SPRAY & NUISANCE DUSTS

A compact, new lightweight, low-cost mask for nuisance dusts and paint over-spray is available from Pulmosan Safety Equipment Corp. The one-size all plastic body fits all faces comfortably and does not interfere with the wearing of spectacles. The Respir-ette mask is washable and non-irritating. New plastic based disposable filters are easily replaceable, inexpensive and efficient.

For details, use Key # RP-12 on inquiry card on page 1.

Spring Meeting of Glove Distributors Assoc.

The Annual Spring Meeting of the National Association of Industrial Glove Distributors will be held at the Statler-Hilton Hotel in New York City on Tuesday and Wednesday, April 11, 12, 1961. This is during the week of the Greater New York Safety Council meeting which also is scheduled at the Statler-Hilton.

The meeting will consider recommendations of the Standards Committee covering single-thickness canton flannel gloves and a system of marking such gloves to identify their weights so that buyers will know that gloves are made of materials as represented and as requested on purchase specifications.

The Board of Directors will meet Tuesday evening. The morning meeting and annual elections on Wednesday will be limited to distributors; the afternoon session on Wednesday is open to manufacturers and distributors.

All distributors of work gloves from their own warehouse to industrial consumers, including distributors and/or dealers whose sales of industrial gloves are only a small part of their total business; and all manufacturers of work gloves for industrial consumers, are invited to attend this meeting.

Safety Code for Higher Voltages

Because of the growing use of higher voltage electrical systems in commercial buildings and operation of them by relatively untrained personnel, such as hospital maintenance workers, a task force of the American Institute of Electrical Engineers has drawn up a guide for installing such equipment so they will be as safe as possible.

This guide was announced at the Winter General Meeting of the Institute in a paper, "Guide for the Installation in Buildings of Wiring and Equipment Over 600 Volts." It outlined the preliminary report of a task force of the AIEE Industrial and Commercial Power Systems Committee. D. C. Michael, of Cincinnati, was chairman.

The paper pointed out that load center type distribution systems, ranging from 2,400 to 14,000 volts have been used extensively in industrial plants, but this type is now being used for large commercial buildings because of increased lighting demands and air conditioning. These buildings, however, "lack the training safety and maintenance staffs of industrial plants." Rarely, if ever, are employees qualified to operate and maintain electrical equipment energized at voltages over 600.

The increasing practice of using voltage distribution systems in commercial buildings requires extra care "in the selection of equipment and methods of installation to insure that the equipment is safe, and that adequate provisions are made for operations and maintenance."

NEW MYCO FIRST COAT

Won't Yellow!

Stops Floor Porosity!

Saves Dressing Time!

Saves Money!

FIRST COAT

is a colorless, semi-permanent primer that fills the pores of composition floors, makes dressings adhere better, stay glossier, wear far longer. It never yellows, laps or streaks; applies easily with mop. No leveling problems. Stripping dressing won't disturb First Coat, and unlike sealers, it can be removed! An excellent cost-cutting way to restore old floors, eliminate efficiency-robbing chemical action between new floors and dressing.

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FOR INFORMATION OR FREE DEMONSTRATION — MAIL TODAY!

☐ Send further information

☐ Have representative call to give free demonstration

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City_____ Zone____ State_____

Signature_____

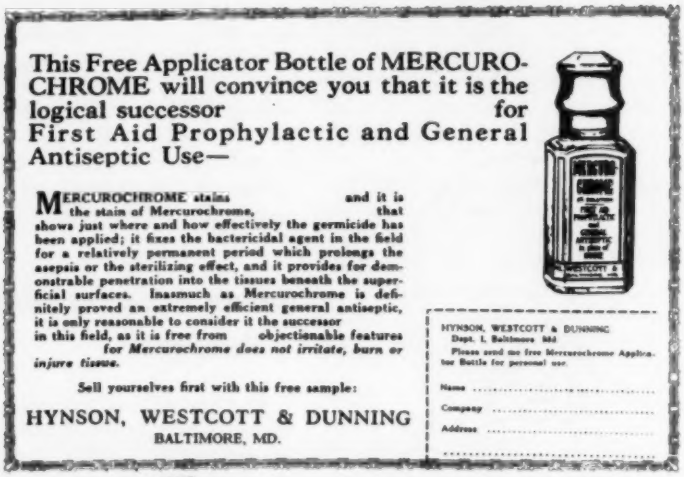
Title_____

(For details, use Key # D-26 on card on page 1)

CONTINUITY COUNTS

33 YEARS IN SAFETY MAINTENANCE

America's Pioneer Industrial Safety Magazine



This Free Applicator Bottle of MERCUROCHROME will convince you that it is the logical successor for First Aid Prophylactic and General Antiseptic Use—

MERCUROCHROME stains and it is the stain of Mercurochrome, that shows just where and how effectively the germicide has been applied; it fixes the bactericidal agent in the field for a relatively permanent period which prolongs the asepsis or the sterilizing effect, and it provides for demonstrable penetration into the tissues beneath the superficial surfaces. Inasmuch as Mercurochrome is definitely proved an extremely efficient general antiseptic, it is only reasonable to consider it the successor in this field, as it is free from objectionable features for *Mercurochrome does not irritate, burn or injure tissue.*

Sell yourselves first with this free sample:

HYNSON, WESTCOTT & DUNNING
BALTIMORE, MD.

HYNSON, WESTCOTT & DUNNING
Dept. I, Baltimore, Md.

Please send me free Mercurochrome Applicator Bottle for personal use.

Name .....

Company .....

Address .....

.....

H W & D Advertisement—January 1928

Thantis®
LOZENGES
first aid for throat irritations
THANTIS® Lozenges prevent lost man hours due to sore throats caused by coughs or colds.
THANTIS Lozenges do not produce unfavorable reactions in the mouth, because they contain no antibiotic.
THANTIS Lozenges act prophylactically to ward off infection.
THANTIS Lozenges have a twenty-nine year record of proven safety and effectiveness in clinical and lay use.
Mercurochrome®
First aid for wounds.....
MERCUROCHROME should be used promptly to prevent infection. No antiseptic has been proven to be more effective than MERCUROCHROME for topical application.
HYNSON, WESTCOTT & DUNNING, INC.
Baltimore 1, Maryland

H W & D Advertisement—January 1961

CONTINUITY BUILDS SALES

Continuity of ethics, integrity, product and advertising. . . . all 4 must be maintained to build a continuing rise in sales.

As pioneer developers, producers and marketers of many leading pharmaceutical products such as MERCUROCHROME and THANTIS Lozenges, the internationally known Hynson, Westcott & Dunning, Inc., of Baltimore long ago discovered the power of the "Big 4 of Continuity."

Without a single break in this magic continuity, H W & D, Inc., has spread its message month by month in SAFETY MAINTENANCE to build and maintain its increasingly effective sales program in the medium that reaches—and holds—the heart of the safety industry.

SAFETY MAINTENANCE has helped to make MERCUROCHROME industry's household word not only by providing an expanding market to pinpoint industrial sales . . . but by opening other doors for H W & D, Inc., salesmen with a dynamic Reader's Inquiry Service.

Learn how your company too can profit every month by adding the 4th factor of continuity in SAFETY MAINTENANCE—your growth potential can be given an added spurt NOW!

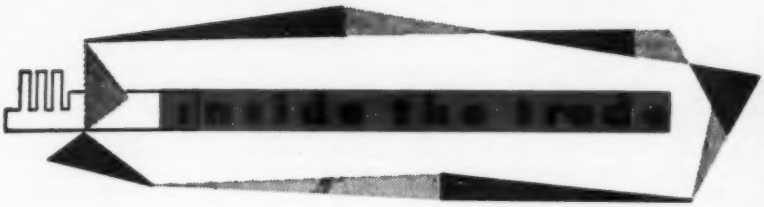
Write Advertising Department for brochure

SAFETY MAINTENANCE

America's Pioneer Industrial Safety Magazine
Est. 1901

Coverage Through PAID Circulation

75 Fulton St., New York 38, N. Y.



Two major sale promotions in the *Building Products Division of THE FLINTKOTE CO.* have been announced by William Feick, Jr., vice president in charge of sales. *Melvin W. Searls* has been appointed to the newly-created post of merchandising director. *Thomas J. McDonald* has been named to the newly-established position of sales director.

Frank A. Johnson, president of *Endicott Johnson Corp.*, announces a new management team for *LEHIGH SAFETY SHOE CORP.*, to succeed Frank Griswold, resigned to engage in business for himself. *Raymond Codrea*, with the Lehigh sales organization for 13 years, becomes Director of the Lehigh division. *Bernard R. O'Donnell* moves up from assistant to General Manager.

KLEMP METAL GRATING CORP., manufacturer of metal gratings for more than 40 years, is moving several divisions of the organization into new, larger quarters at 1132 West Blackhawk Street, Chicago 22, Ill. These include the industrial grating division, which sells steel bridge decking, floor armor and safety stair tread in all parts of the world, and the Klemp International division, which manufactures aluminum grating and aluminum ornamental grilles for the architectural and building industries.

Three management changes in sales offices of *THE DOW CHEMICAL CO.* have been announced by Donald K. Ballman, vice president and director of sales. *Glenn H. O'Neal*, sales manager of the St. Louis office for many years, has been promoted to sales manager of the Chicago office, succeeding Henry S. Pierson, who is leaving the company. *Robert J. Minbiole*, sales manager of the New Orleans office for the past five years, has been promoted to sales manager of the St. Louis office. *Frank H. Sellars*, district sales manager for chemicals in the New York office, has been promoted to sales manager at New Orleans.

Frank D. Sullivan has been named Southwest district sales manager for the Service Products Division of *JOHNSON'S WAX*. He will be headquartered in Dallas, Texas, at 6417 Cedar Springs Avenue. Thomas L. Fitzgerald, the division's field sales manager, said that Sullivan will direct sales of Johnson's maintenance, metalworking and industrial coatings products in Texas, Louisiana, Mississipi and portions of Tennessee, Arkansas, New Mexico and Arizona. Sullivan succeeds William W. Cooper, who is entering the sanitary supply business in the Dallas area. Cooper will continue his association with Johnson's Wax as a maintenance products distributor.

Pierre Balteau, 41, president of the *BALTEAU ELECTRIC CORP.*, manufacturer of testing instruments in Stamford, Conn., was killed February 15 in the crash of a Sabena airliner near Brussels. Mr. Balteau was returning to his home in Liege, Belgium following a visit to the United States.

Bill Johnson and *E. C. Sanford* have been appointed as sales representatives for *CAR-MON PRODUCTS CO.*, manufacturer of carbon monoxide and welding fumes removal systems. Mr. Johnson will represent the firm in western Pennsylvania, from Lewistown west to the state border, and in Garrett and Allegheny counties in Maryland. He will have headquarters in Pittsburgh, at 74 Sampson Avenue.

Mr. Sanford, of Sanford Mechanical Equipment Company, Oakland, California will service Car-Mon customers in California and Nevada.

Raymond J. Jacklyn has been appointed manager of the new west coast branch of *BIG JOE MFG. CO.*, producer of hydraulic lift trucks. The new factory branch is located in San Francisco, serving the 11 Western states. Mr. Jacklyn has been a company dealer in Northern California for over five years.

Formation of a new company to engage in driver training consulting has been announced by *Harold L. Smith*, national anthority on driver training and former fleet safety consultant, Ford Division, Ford Motor Company. *HAROLD L. SMITH AND ASSOCIATES* will specialize in driver improvement programs for professional drivers. Offices have been opened at 2978 Wilshire Blvd. in Los Angeles.

Originator of the "Smith System of No Accident Driving" Smith has trained fleet supervisory personnel in the petroleum, baking, beverage, public utility, insurance,

specify **PAC-KIT** *unit-packed protection because:*

STERILITY is assured—sealed units are for one use only;

MAINTENANCE is easy—a glance tells what's to be replenished;

WASTE is eliminated—you buy only what's needed, replace only what's used.

Ask your distributor or write

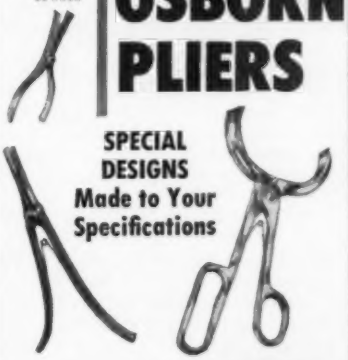
Pac-Kit Safety Equipment Company

P. O. BOX 1306
GREENWICH, CONN.

FIRST PAC-KIT® AID

(For details, use Key # D-27 on card on page 1)

YOU GET A
SURE. SAFE GRIP
with
OSBORN PLIERS



SPECIAL DESIGNS Made to Your Specifications

Get SAFETY EQUIPMENT From SAFETY SPECIALISTS

LOCK-OUT DEVICE

Osborn SM
MANUFACTURING CORP.
WARSAW, INDIANA

(For details, use Key # D-28 on card on page 1)

dairy and transportation industries. A native of Detroit, Smith has been teaching driving 14 years.

The Safety Supply Co. of Toronto, Ontario have been named exclusive Canadian distributing agents for the *GENERAL SCIENTIFIC EQUIPMENT CO.* of Philadelphia for "G-63"—a fast-acting, effective aerosol spray for burns. Safety Supply maintains branch offices throughout Canada. Inquiries within Canada should be addressed to the Safety Supply Company, Toronto 2, Ontario.

CLARK EQUIPMENT CO. has announced the appointment of *J. A. Boley* as General Manager of Clark Equipment Co., New York Sales & Service Branch, 712 Eleventh Avenue, New York City. Mr. Boley has been associated with Clark for six years, most recently as General Manager of its Detroit Sales and Service Branch.

Two executives of *ANSUL CHEMICAL CO.* will serve as company officers for the first time this year. They are *William R. Rinelli,* Vice-President, and *Edwin D. Schlutter,* Controller. Rinelli is General Manager of Ansul's Chemical Products Division, appointed in June, 1959. He originally joined Ansul in 1935 as a research chemist. Schlutter will continue for the present in his capacity as Director of Corporate Administrative Services, a title he assumed in January of 1958. Schlutter joined Ansul in 1947.

A new distributor for the Canadian province of Quebec has been announced by *SELLSTROM MFG. CO.*, manufacturers of face and eye protective equipment. *Industrial Safeguards Company,* 955 Amherst Street, Montreal, headed by Allan Harrow, will be responsible for the distribution and sales of the Sellstrom Safeguards line throughout Quebec.

In a move to expand and speed service to customers, *JOMAC INC.*, has relocated its New York City office to 1700 Tonnelle Avenue, North Bergen, New Jersey. Located on U. S. routes 1 and 9 in North Bergen, N. J., this office and warehouse is centrally located to serve Jomac customers in the metropolitan New York and northern New Jersey areas.

Preparing for a wider diversification of product lines and anticipated growth, Earle M. Scott, President of *SCOTT AVIATION CORP.*, recently announced important changes in their Sales Organization. *L. E. Jordan,* General Sales Manager, Commercial Division, moves into the newly created position of Director of Marketing for all divisions. Jordan is a Director and has been with Scott eleven years.

Richard A. Noelck, Branch Manager for the past eight years, will assume the position of Director of Sales for all company divisions.

Robert J. Brewer, Assistant Sales Manager, Commercial Division, becomes Sales Manager of that division. He has been with the Scott organization for six years.

James H. Davidson, has been appointed Vice President-Marketing of *AMERICAN-LINCOLN CORP.*, manufacturers of floor maintenance equipment. Mr. Davidson has been Vice President-Marketing for Rogers Industries, and for twelve years preceding that was Vice President of Marketing for Clinton Engine Co.

Safety Appointments

The Allis-Chalmers Mfg. Co. has announced that *Robert G. Reeve* has been named manager of the safety services section, industrial and community relations department. He started with the company in 1942 and has been with safety services since 1951, serving as assistant manager since 1958.

James C. Johnston

James C. Johnston, formerly Acting Director of Industrial Safety and Hygiene, Bureau of Naval Weapons, Department of the Navy, has joined the headquarters safety staff of the Post Office Department, Washington, D. C. Prior to the more than nine years' association with the Navy Department, he served for four years as Industrial Hygiene Engineer with the Virginia State Health Department. Mr. Johnston's major responsibilities will be concerned with the Department's motor vehicle safety program with special assignments in industrial safety and hygiene.

J. Sharp Queener, manager of the Safety and Fire Protection division of E. I. duPont de Nemours, Inc., has been named chairman of the General Safety committee of the Manufacturing Chemists' Association. Queener joined duPont in 1929 and has held supervisory positions in operating, personnel, and safety activities. In 1942 he became assistant manager of the Personnel division of the Employee Relations department, was advanced to general assistant manager of the Safety and Fire Protection division in 1949, and in 1950 was promoted to his present position of manager. He has been a member of the MCA Safety committee since 1951, and is also on the board of directors of the National Safety Council, the National Fire Protection Association and the Delaware Safety Council.

Glenn G. Fleming, safety director of Celanese Corporation of America, has been named vice chairman of the General Safety committee of the Manufacturing Chemists' Association, Inc. Fleming joined Celanese Corporation in 1948, and has been in safety work for 33 years in various supervisory capacities. He has for several years been a member of the MCA committee which collects and disseminates injury statistics, computes injury frequency and severity rates, and publishes case histories. The committee also sponsors an annual "Chemical Industry Safety Workshop" for plant supervisors; issues plant safety guides for chemical safety; and makes the annual presentation of the "Lammot duPont Safety Award" and the certificates of achievement to chemical manufacturing plants which have worked the calendar year without an industrial injury.

A. N. Brion, a 37-year veteran of the bus transport industry, has been elected Vice President-Safety and Personnel Training of The Greyhound Corporation. Brion has been President of Greyhound's Eastern, Atlantic and Richmond divisions during the past five years. He began his career in 1923 as a driver but soon switched to sales duties, holding various managerial posts, and in 1954 moved to corporate headquarters in Chicago as Vice President of sales and operations. In his new position, Brion will develop and direct safety policies and programs throughout the Greyhound system, including the selection, training and supervision of drivers.

C. Melvin Olson has been named supervisor of health and safety at the Niagara Falls plant of the Eastern Chemical Division, Hooker Chemical Corporation. Mr. Olson has been medical services supervisor at Hooker since last year, and was safety director at Oldbury Electro-Chemical Company from 1942 until 1956 when that company was merged into Hooker. During those years he was in full charge of the Oldbury safety program which resulted in a notable improvement in the company's safety record. Mr. Olson joined Oldbury in 1928 as a research chemist. He is vice chairman of the Niagara Frontier Chapter of the American Society of Safety Engineers, and a member of the American Chemical Society, the Electrochemical Society, and the American Industrial Hygiene Association.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.

what's new for APRIL

PORTABLE GLOVE TESTER FOR LINEMEN

(Use Key # 569 on Inquiry Card on page 1)

LINEMEN'S gloves can be tested right on the job quickly, and efficiently, with the E. D. Bullard Company's New/Matic Portable Glove Tester. The New/Matic is the latest development in testing rubber gloves daily for hairline cracks or pinpoint leaks. Requiring only 3 minutes' time, the glove is simply clamped over the top of the tester, hand inflated, and inspected. The tester comes in two sizes to fit all linemen's standard rubber gloves. Suitable as standard equipment on every line truck, the tester is neat and compact—weighs only 6 lbs. It is made from noncorrosive steel and is guaranteed for a full year.

COMPACT ULTRASONIC CLEANER

(Use Key # 570 on Inquiry Card on page 1)

L & R MFG. Co. has announced a low-priced ultrasonic cleaner complete with stainless steel cover. The new unit, called the Maxson, has a full 1¼ quart capacity and features a new built-in electronic circuit that transmits "peak power" directly from the transducer to the cleaning tank. It is designed to clean a large volume of pieces fast, efficiently, economically. The 8" by 6" unit is ready for immediate plug-in operation. Power output is 45 watts; power consumed is 140 watts; operating frequency is 70–80 KC. Unconditionally guaranteed for one year (tube is guaranteed for 90 days). A 10-day trial is being offered.

AIR-CONDITIONED BOOT

(Use Key # 571 on Inquiry Card on page 1)

NEW knee-high, air-conditioned rubber boots are rugged enough for any outdoor use. They are easily kicked off by a kick-off spur at the base of the heel and are fastened at the top by a single button. They are constructed of molded neoprene by the Tingley Rubber Corp. for long-wearing resistance to abrasion, weather, oil and chemicals. Especially useful to workers in light industry, service stations and garages, and for many types of outdoor uses. Also available in conventional rubber for ordinary water or snow service.

With only one button at the top, they are also light in weight and easy to wear. Tops are tight enough to keep out foreign material but loose enough to permit air to be drawn in, whether worn inside or outside the trousers. The patented design produces bellows-like action with each step for "air conditioning." Ridges molded inside assure ventilation and circulation of air. Boots stretch to fit over any shoes. Soles have molded grids with rounded-end radii for easy decontamination when worn by workers in atomic plants.

FLUORESCENT CHANGEABLE-LETTER SIGNS

(Use Key # 572 on Inquiry Card on page 1)

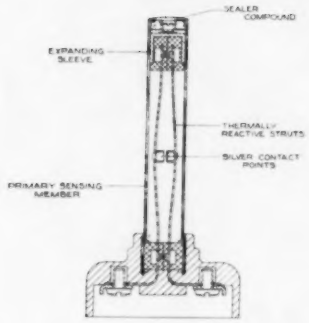
THESE versatile, attention-getting signboards utilize daylight-fluorescent letters which seem to glow in ordinary light. Made by W. W. Holes Mfg. Co., the Magne-Glo sign kits contain over 200 individual letters and numerals each with magnetized backing for attachment to black, lightweight, metal background-panels. Letters may be orange, yellow or green. Suggested safety uses include posting of safety slogans and safety records, as demonstration boards for safety meetings, etc.

MASONRY LEAK SEALER

(Use Key # 573 on Inquiry Card on page 1)

A NEW, improved, liquid chemical formula called Stontite to stop water leaks and seepage from masonry lined pools, dams, reservoirs, tanks, tunnels and walls for all masonry water barriers has been announced by the Stonhard Co. Mixed with Portland cement, it produces a dense, quick-setting mortar which adheres with a tight bond to any type of masonry material. It dries rapidly and can be applied even against hydrostatic pressure.

When used as a plaster coating, it is applied to the exposed side of walls where it quickly dries and prevents moisture seepage. This one-sided treatment eliminates costly excavating to make repairs. The company is backing the product on a 30-day trial basis.



QUICK RESPONSE FIRE DETECTOR

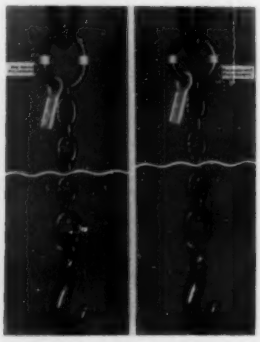
(Use Key # 574 on Inquiry Card on page 1)

THERMOTEC Model 302 thermostat increases the efficiency of fire detection installations because of the unusual sensitivity of its new, patented action and its ability to automatically sort out normal temperature changes from actual fire conditions, according to the manufacturer, Tomorrow, Inc. The new fire detector thermostat, listed by U.L., can be used as a replacement element in present systems in order to modernize them or as an element in new installations. Due to its unusual design, the unit is relatively unaffected by moisture, dust, vibration and even paint build-up.

SLING CHAIN FEATURES OVERLOAD WARNING RING

(Use Key # 575 on Inquiry Card on page 1)

A NEW CONCEPT in sling chains—a warning ring that provides visual evidence of overload—has been introduced by The Campbell Chain Co. The new Sentry Slings are equipped with rings which elongate when the sling is overloaded. Though stronger than the chain itself, the ring gives immediate warning by changing shape, before permanent damage to the sling can occur. The warning ring was designed especially to protect men and materials. When repairs are necessary, they are quickly made, with warning rings easily replaced at the factory. In most cases, only the ring need be replaced, so repair costs are kept to a minimum. Available in all types, the slings are made from Cam-Alloy steel chain.



LESS TOXIC SOLVENT

(Use Key # 576 on Inquiry Card on page 1)

A COMPLETELY non-flammable, non-explosive safety solvent, Deck-Glo Notet, is announced by Sea-Air Chemical Corp. In addition, it will not cause toxic build-up in the body to damage vital organs, such as liver and kidneys. Specifically created to replace poisonous carbon tetrachloride and other extremely toxic chlorinated chemicals, it is said to be as highly efficient and as quick-drying as carbon tet, and may be used full strength for wipe, spray or dip applications. Guaranteed to be non-corrosive on all metals, fabrics, insulation and other protective coatings, it is especially recommended by the manufacturer for cleaning motors, engines, electronic parts, electrically and manually operated machines. Available in 55-, 30- and 5-gallon steel drums.

INDUSTRIAL WARNING HORN

(Use Key # 577 on Inquiry Card on page 1)

A PORTABLE signalling horn with wide application to industry has been introduced by Ferrell Mfg. Co. Powered by Liquefied Freon 12 in a disposable Energy Pak, these self-contained units require no outside power source. The all-metal horns are painted a distinctive safety yellow color with corrosion-resistant marine enamel. Available with either push button operation or thumb lever action. The Energy Pak, capable of producing 800 strong, clear blasts, is safety-fused, will not explode, is I. C. C. Safety-Approved and certified by the Bureau of Explosives. Applications include signals between work crews, plant watchmen, patrolling guards, emergency warnings. Especially valuable around combustible materials in such industries as chemical, petroleum and grain.

PHOTOELECTRIC GUARDS

(Use Key # 578 on Inquiry Card on page 1)

MODULATED-LIGHT projectors are used in a line of photoelectric equipment introduced by The Clark Controller Co. Designated as "Curtain of Light" photoelectric protective equipment, the units are designed for direct mounting on presses and other industrial machines, such as shears, brakes, etc., to stop machine operation automatically when any part of a person's body, such as a hand or arm, enters the danger area. Equipment consists of a wide-beam modulated-light projector, a wide-beam photoelectric receiver, and a control unit. Standard "curtains" are 7, 12, and 17 inches wide. Light projector and photoelectric receiver can be mounted any distance apart up to 15 feet. Highly sensitive to partial obstruction, the control units operate when 2 inches or more of the light curtain are obstructed. It uses a modulated light beam to eliminate the effects of variations in normal ambient light conditions and to prevent the use of substitute light to "fool" the curtain. To self-check the equipment, a solenoid-operated shutter interrupts a small portion of the curtain on each upstroke. Should the curtain fail to respond to the shutter, the checking circuit produces a signal which will stop the press automatically.

IMPROVED FILM-BADGE REPORTING

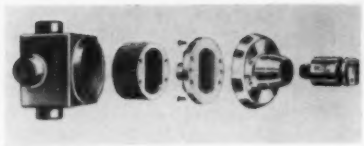
(Use Key # 579 on Inquiry Card on page 1)

A NEW film-badge radiation report which complies with new A.E.C. requirements of calendar reporting is announced by Nuclear-Chicago Corp. Film badges are worn by persons who routinely work near sources of radiation—either radioisotopes or x-rays. The new film-badge form gives the current reading and, in addition, provides cumulative readings for calendar quarters and for the calendar year. The company will continue to report as low as one milliroentgen, thus eliminating estimation of low doses.

POCKET-SIZE "WALKIE-TALKIE"

(Use Key # 580 on Inquiry Card on page 1)

A POCKET size "Walkie-Talkie" Citizen's Band radio weighing only 18 ounces and with a range of one mile under normal operating conditions has been introduced by Lafayette Radio Electronics Corp. The Lafayette HE-29 is crystal controlled with a super heterodyne receiver featuring push-to-talk operation, uses eight batteries with a life of about 70 hours, and has a 46-inch telescoping antenna which will transceive up to seven miles under optimum conditions. The radio may be operated without FCC license or age requirements, and may also be used as an integral part of any Class D radio system. It is expected to be useful in construction industries, plant security, warehousing, in fire and police departments, etc.



EXPLOSION-PROOF OUTLET & PLUG

(Use Key # 581 on Inquiry Card on page 1)

AN explosion-proof electrical receptacle and plug which prevent arcing when appliances are connected or disconnected at wall outlets is announced by Harvey Hubbell, Inc., for use in Class I, Group C and D, explosive atmospheres in hospital operating rooms and industrial plants where flammable gases or volatile flammable liquids are processed or handled, as in petroleum and gas refineries, spray booths, chemical plants, aviation refueling and repair centers, and cleaning and dyeing establishments.

To prevent explosive gases or fluids from accumulating inside the plug, the Hubbellock plug, listed by U. L., is designed so that a self-hardening, epoxy insulating resin is poured into its shell at the time the three-wire appliance cord is fastened to its terminals. The resin fills all air spaces and forms a watertight, vapor-tight mass. Wires and terminals embedded in the resin cannot loosen to cause sparking and double-clamping cord grip relieves strain on wires. Spring pressure and special keyed construction hold the plug firmly in place in the outlet when current is flowing, so that even a direct pull on the wire will not loosen the plug and cause sparking.

The explosion-proof wall outlet receptacle is designed so no current can flow unless the plug has been completely inserted and rotated 22–25 degrees clockwise. Thus there is no possibility of sparking when the plug is being inserted or removed.

LENS CARE STATION

(Use Key # 582 on Inquiry Card on page 1)

A NEW FOOLPROOF lens cleaning station that dispenses silicone treated Sight Savers tissues has been announced by Dow Corning Corp. With these tissues no liquid is required to clean and polish eye glasses and goggles. Made entirely of steel, and without moving parts, the new No. 64 dispenser delivers just one extra-large tissue at a time. The user simply places his thumb directly on the tissue in the dispenser and slides it down. The station is easily mounted with screws or pressure-sensitive adhesive backing. It is available from safety supply distributors, who also handle refill packets.

SAFETY GLASSES STYLED FOR WOMEN

(Use Key # 583 on Inquiry Card on page 1)

HERE'S the safety director's answer to: "How do I get women to wear safety glasses?" Willson Products introduces two flattering yet functional styles of women's safety glasses in two-tone or solid colors. Style LFE—ebony on crystal, LFC—solid charcoal. In both, modern street-wear styling combines with fitting quality, safety and comfort.

Wire core spatular temples are easily adjusted for permanent fit. Sheet stock frames and temples are of combustion-resistant butyrate plastic. Lenses, held securely in deep frame grooves, snap out for replacement. Two standard size lenses in clear six Curve Super-Tough, Plas-Tough or Willsonite; extra sturdy bridge in three sizes; rigid nose pads for even weight distribution and rocker nose pads for hard-to-fit workers. Available with sideshields.

RUBBERIZED CAULKING SEAL

(Use Key # 584 on Inquiry Card on page 1)

A NEW rubberized caulking sealer for filling cracks up to ⅜ in. wide in asphalt and concrete pavements is announced by Maintenance Inc. Known as Lastek 34, it is packaged in caulking tubes and can be applied with any standard caulking gun. It prevents water penetration and subsequent freeze-thaw damage and is also suitable for sealing floors and parking decks against crack leakage. Satin black in color, it matches Jennite J-16 surface sealer with which it is frequently used. In cracks, the material remains elastic, expanding and contracting with heat and cold and adhering firmly to adjacent surfaces.

CO_2 PORTABLE EXTINGUISHER WITH HIGHER RATING

(Use Key # 585 on Inquiry Card on page 1)

TEN new Underwriters' and Factory Mutual approved CO_2 hand-type "Deluxe" and "Standard" Model portable fire extinguishers have been introduced by The Fyr-Fyter Company with five sizes (2½-, 5-, 10-, 15- and 20-lb. capacities) in each of two price ranges. Simplification and streamlining of release valve design, use of precision calibrated high-capacity discharge horns and other engineering refinements give the new models greatly increased performance efficiency. The 10-lb., 15-lb., and 20-lb. models carry new UL approval ratings up to 50% higher than the classifications of previous models of the same capacity, at no increase in size, weight or cost. All include safety valve, recoil preventor and locking pin for full protection of the operator. The carbon dioxide units are recommended for the protection of machinery, electric motors, transformers, generators, fuse panels, switchboards, electronic office equipment, food preparation facilities, marine craft, trucks, furs, valuable records and all similar exposures.

DEODORIZER FOR TEMPORARY TOILETS

(Use Key # 586 on Inquiry Card on page 1)

THE DEVELOPMENT of a new chemical formulation to end "rest area" privy odors is announced by Werley Chemical & Supply Co. This Sani-Septic Concentrate offers park officials, sanitary engineers, highway, mining, lumbering, and industrial maintenance personnel a new approach to the rest area odor problem by destroying the odor-producing bacteria. The product has no odor of its own—not a perfume or odor "cover-up." The liquid, with 93% active ingredients, is diluted with water and poured into the privy vault to destroy present and future odors.

NEW CHUCK-HOLE PATCHING PROCESS

(Use Key # 587 on Inquiry Card on page 1)

A NEW coalescent process, developed by The Monroe Company, Inc. strengthens the union between specially graded aggregates and emulsified bonding agents to insure greater permanency and uniformity for patching chuck holes in parking areas and driveways. The new process blends emulsified asphaltic oils with specially graded, prismatic aggregates, keeping them suspended until compression is achieved. These coal tar coated aggregates then combine with the emulsified oils to form a perfect bond even in water or at temperatures as low as 15° F. Normally, asphaltic oils and liquid coal tar are incompatible, but the new Monroe process holds these elements in prolonged suspension until used for repairs. According to the manufacturer, the new patching material is more cohesive, spreads easier and will outlast the original pavement. Nothing is added, no mixing or heating is required. No waiting after application, and the material remains fresh in the original container.

IMPACT RESISTANT FLASHER

(Use Key # 588 on Inquiry Card on page 1)

NEW Selecto-Flash safety lights, with head-frame and translucent red lens molded of tough Tenite butyrate plastic, are effective warning devices on highway, street and industrial construction projects. The excellent impact and weather-resistant properties of butyrate make these lights particularly serviceable under the abuse and exposure of outdoor usage. Manufactured by Selecto-Flash, Inc., the light is battery-powered through a transistorized circuit, has an adjustable flash frequency, and comes in either one-way, two-way or multi-directional models.

GREEN MEMBRANE FILTER SPEEDS COUNT OF LIGHT PARTICLES

(Use Key # 589 on Inquiry Card on page 1)

GELMAN Instrument Co. announces a new membrane filter, specifically designed to speed counting and sizing of contaminant particles in air, military fluids, and other liquids. It is a thin microporous plastic material with controlled micron size pores. The membrane filter is now available in a dark green color so that, under the microscope, both dark and light colored particles are clearly contrasted against the green background. It is strong, flexible, and easy to handle. Available in a wide range of sizes.

IMPROVED BOWL CLEANER

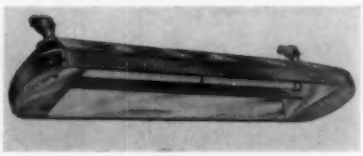
(Use Key # 590 on Inquiry Card on page 1)

AN important change in the packaging of Huntington Liquid Bowl Cleaner is announced by Huntington Laboratories. It is now available in safe, non-breakable, one-quart plastic containers. The Cleaner has also been reformulated and packs even more cleaning power. In addition it has a pleasant fragrance that leaves a fresh odor; and a lively yellow-pink color that keeps the bowl sparkling clean. The product will not stain porcelain.

NEW AUTOMATIC LIGHT

(Use Key # 591 on Inquiry Card on page 1)

A COMPLETELY automatic emergency lighting unit is now available from Electric Cord Co. The Light Warden Chargomatic 88 contains no manually operated switches or timers—it plugs into a standard 115 Volt, 60 cycle outlet. Normal power maintains battery charge, and when power failure occurs, loss of power throws a relay to turn on the emergency lights immediately. The 88 is also available with 3-conductor cord and plug or conduit for permanent AC connection. All units are equipped with test switches, have two flood heads, and can support a total of five lights in operation. Battery is a 6 Volt, 105 Amp.-hour, lead acid, glass jar type and is equipped with visible hydrometer balls, so charge level is instantly known. Unit is fully guaranteed for five years.



INFRA-RED HEATING UNIT

(Use Key # 592 on Inquiry Card on page 1)

QUARTZ RAY is an Infra-red Focused Electric Heater for spot heating of any outdoor or indoor area. Made by Pinco, Inc., the new heater pinpoints heat on the worker or object. The heating element, which emits 95% infra-red radiation, is encased in a fused quartz tube and the reflector is gold plated for maximum reflecting intensity. The radiations pass through the coldest air with minimum loss of energy to the surrounding air and warm any object in their path. The quartz tube is immune to thermal shock. The heater resembles a fluorescent fixture and can be mounted on ceiling or walls. Available in 110, 208 and 240 volt units, the heaters have application in warehouses, cargo handling areas, loading platforms, bus stations, terminals, gas stations, etc.

IMPROVED SHOCK ABSORBER FOR LIFE LINES

(Use Key # 593 on Inquiry Card on page 1)

SAFE-HI's new and improved (Rope Grab) Shock Absorber developed and manufactured by the Rose Mfg. Co. gives new safety to workers in high places because it controls and limits the impact of a fall. Especially recommended for swinging stage work, structural steel work, bridge building, etc.

Made from nickel plated, double-heat-treated steel plates with a nylon life line, the Shock Absorber is quickly and easily attached to most life lines and can be moved up or down as the workman changes position. Cannot be accidently dislodged. Should a fall occur, the five foot nylon rope tightens the opposing steel clamps so that the impact pressures on the falling workman's body are held within the safe limits of approximately 600 pounds regardless of the length of fall. Available in two models: #550 with 7/16" nylon lanyard, designed for most work applications; #575 with 3/16" stainless steel cable for use where corrosive action may adversly affect the nylon rope.

IMPROVED SAFETY SOLVENT

(Use Key # 594 on Inquiry Card on page 1)

A NEW and improved safety solvent, Turco-Solv, has been announced by Turco Products, Inc. The product now offers a combination of detergent action plus controlled evaporation which allows the solvent to stay wet and working just long enough to clean thoroughly in a minimum of time. A great safety advantage is its reduction of solvent vapors, minimizing toxicity and flammability. The solvent is designed for in-place-spray-cleaning of motors, generators, switches, control panels, rheostats and other electrical equipment. It is non-corrosive and non-conductive, requires no hand-wiping, rinsing or further chemical processing, and is safe to use on all metals, paint and varnish.

STERILIZING MAT

(Use Key # 595 on Inquiry Card on page 1)

A NEW unit designed to disinfect shoes and wheels of rolling equipment in hospital corridors, without interfering with normal work routines, has been announced by National Cylinder Gas Div. of Chemetron Corp. Testing of the unit for four months at a Philadelphia hospital showed that it reduced bacterial count by at least 70 percent. The Maysco Sterile-Tread is mounted on the floor at the entrances to operating suites, nurseries, and delivery rooms. Units are custom-made, but generally are 12 feet long and of corridor or entry width.

The Sterile-Tread consists of a one-inch high pan which contains a thin plastic sponge material and is covered with canvas. The sponge is saturated with a disinfectant solution which penetrates the canvas and contacts the bottom and sides of shoe soles and wheels of equipment. Springs keep canvas taut, and a non-skid sill at each end slopes to floor level. The unit is produced by the Mays Equipment Development Corp.

HAND CLEANER DISPENSER

(Use Key # 596 on Inquiry Card on page 1)

A NEW DISPENSER, designed by Quickee Products, Inc. for use with their cream hand cleaner, is said to be of simple but exceptionally strong construction. All gears, screw rods, rubber gaskets, locking devices, etc., are eliminated in this unit. Convenient size is cited as making it suitable for gas stations, repair trucks, small shops and other places where larger equipment would be cumbersome. The dispenser is unconditionally guaranteed.

PLASTIC-COATED REVERSIBLE GLOVES

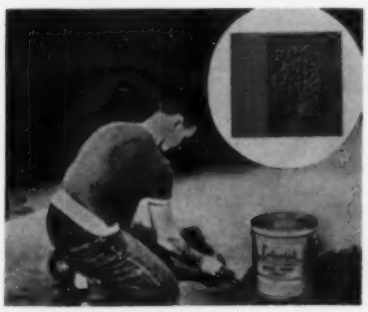
(Use Key # 597 on Inquiry Card on page 1)

CROMAC plastic-impregnated work gloves are now available in reversible style providing double the working surfaces, the manufacturer, Jomac, Inc., has announced. The wing thumb permits wearing the glove on either hand. Available in men's large size in either knit wrist or band top style, they are made from a custom fabric impregnated with polyvinyl chloride. They have unusually high finger dexterity —yet give excellent wearability, snag resistance and a firm gripping surface. There are no seams on the inside to cause skin abrasion or blistering. Suitable for any work-glove application where canvas gloves are customarily worn, they are particularly useful where sharp edges or snagging are encountered, as in handling metals, plastics, glass, brick, stone, and other manufactured products.

NEW SAFETY FLOOR COAT

(Use Key # 598 on Inquiry Card on page 1)

NON-SLIP coating with "built-in" traction to offer complete slip protection on surfaces where there is foot traffic has been announced by Colonial Refining & Chemical Co. SURE-GRIP can be applied on any clean, dry surface, inside or out, over wood, steel, or concrete. This safety tread contains abrasive materials of near diamond hardness immersed in a heavy-bodied liquid plastic base material. Many times thicker than ordinary floor paint, it is said to be grease-resistant and impervious to oil, alcohol and many acids. Heavy consistency acts as a leveling agent, fills in cracks, etched surfaces, pockmarks and blisters. It is designed for use on stair treads and landings, locker and shower room floors, loading docks and ramps, steps and aisles, around machines, fire escapes, catwalks, scaffolding and boat docks, decks and stairways. Safety colors vividly spotlight danger areas; available in red, gray, green, and high-visibility yellow.



FLOOR MACHINE WITH SILENCER MUFFLER

(Use Key # 599 on Inquiry Card on page 1)

GASOLINE and LP powered Floormobile vacuum floor cleaning machines made by Handling Devices Co. are now available with a special automotive-type silencer muffler which eliminates virtually all exhaust noise. It has a much larger expansion chamber (9" long, 9" deep, 3" thick) than conventional mufflers used on one-cylinder engines. Inside, the muffler has a fiberglass insulator which adds to its noise-muffling efficiency and also helps keep the outside cool.

Floormobile cleans up all sorts of dust, dirt, trash, shavings, cloth scraps, etc., at speeds up to 20,000 square feet an hour. Its powerful suction action even handles bulky litter such as coffee cups. A special filter arrangement prevents whipping clouds of dust into the air.

TOPICAL ANESTHETIC AEROSOL

(Use Key # 600 on Inquiry Card on page 1)

AMERICAINE topical anesthetic in ¾-oz Aerosol spraytainers has recently been introduced to its unit system of first aid, reports Medical Supply Company. Two spraytainers are packed in each MSco double-unit package which fits into a standard unit system kit. The Americaine is sprayed from the container for rapid relief of pain from burns, cuts, lacerations, and abrasions. One ¾-oz spraytainer gives effective coverage of 236 square inches of skin surface, reports the Americaine producer, Arnar-Stone Laboratories, Inc.

Index to Advertisers and their Agencies

Ayerst Laboratories	43	Donaldson Associates, Inc., Huntington
Babbitt Steam Specialty Co.	40	George T. Metcalf., Providence
Bausch & Lomb Inc.	Insire Front Cover	Wolff Associates, Inc., Rochester
Bil-Jax, Inc.	41	Chamberlin-Junk Advertising, Inc., Fort Wayne
Bullard Co., E. D.	28	Erwin, Wasey, Ruthrauff & Ryan, Inc., San Francisco
Coppus Engineering Corp.	40	Chirurg & Cairns, Inc., Chestnut Hill
Cover, H. S.,	41	MacDonald-Cook Co., South Bend
Du Pont & Co., Inc.	5	Batten, Barton, Durstine & Osborn, Inc., New York
Fibre-Metal Products Co.	45	Kotula Co., New York
Fyrepel Products Co., Inc.	46	Merchandising Inc., Newark
Gagnon Enterprises	45	
Globe Industries	7	Advertising and Merchandising, Inc., Dayton
Hanco International	44	
Haws Drinking Faucet Co.	42	Pacific Advertising Staff, Oakland
Hild Floor Machine Co., Inc.	39	Biddle Company, Bloomington
Hunt Valve Co.	20	Ralph Gross Advertising, Inc., Akron
Hynson, Westcott & Dunning, Inc.	Back Cover	
Hy-Test Safety Shoes	26	Joseph E. Schmitt and Associates, Inc., St. Louis
International Film Bureau, Inc.	52	
Junkin Safety Appliance Co.	53	Farson, Huff & Northlich, Louisville
Legge Co., Inc., Walter G.	39	J. M. Kesslinger & Associates, Newark
Littell Machine Co., F. J.	44	Vernon S. Weiler, Chicago
Masury-Young Co.,	57	Hoag & Provandie, Inc., Boston
Monroe Co., Inc.	50	Ryder Advertising, Cleveland
New Jersey Safety Equipment Co.	45	
Osborn Manufacturing Corp.	59	Tri-State Advertising Co., Warsaw
Pac-Kit Safety Equipment Co.	59	Witt & Stall, Inc., Stamford
Setlow & Son, Inc., M.	30	J. W. Shepard Co., New Haven
Wilkins Co., Inc.	31	Laux Advertising, Inc., Ithaca

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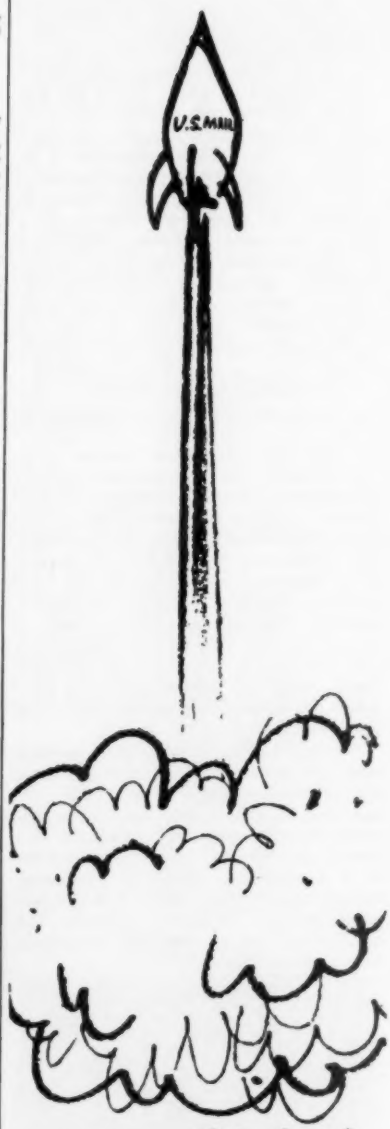

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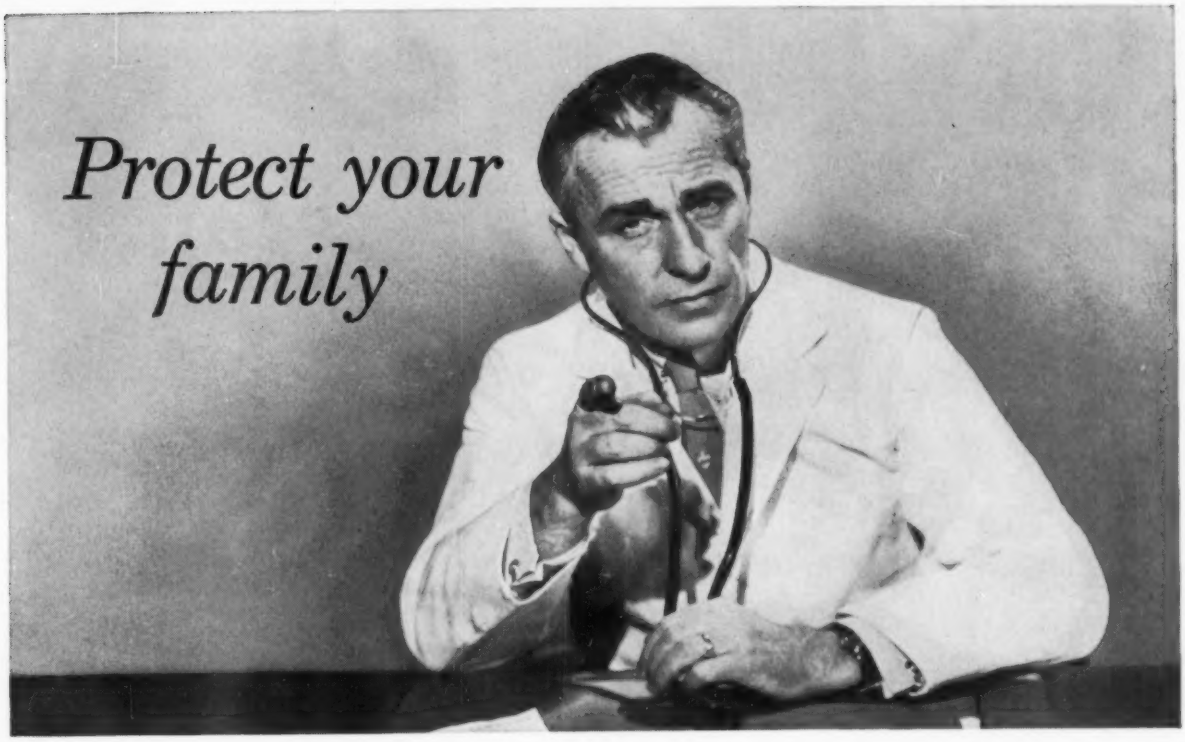

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2 IF YOU THINK YOU HAVE HIGH BLOOD PRESSURE...

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3 STROKES ARE NOT HOPELESS...

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1. Siver, R.H.: Current Medical Digest, Vol. XXI, September 1954.

2. Weekes, D.J.: New York State Journal of Medicine, Vol. 58, August 1958.

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